JNL. OF THE ROYAL ASIATIC
SOC. OF BENGAL

VOL. 2 1936

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गुरुकुल कांगड़ी विश्वविद्यालय, हरिद्वार
पुस्तकालय

विषय संख्या
पुस्तक संख्या
आगत पंजिका संख्या
पुस्तक पर किसी प्रकार का निशान लगाना वर्जित है। कृपया १५ दिन से अधिक समय तक पुस्तक अपने पास न रखें।

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गुरुकुल कांगड़ी विश्वविद्यालय
कृपया पुस्तक के ऊपर कोई निशान आदि न लगायें।

पुस्तकालय
गुरुकुल कांगड़ी विश्वविद्यालय,
हरिद्वार
वर्ग..................आगत संख्या..................

पुस्तक-वितरण की तिथि नीचे अंकित है । इस तिथि सहित २० वें दिन तक यह पुस्तकालय में वापिस आ जाना चाहिए । अन्यथा १० पैसे के हिसाब से विलम्ब दण्ड लगेगा ।

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YEAR-BOOK

OF THE

ROYAL ASIATIC SOCIETY OF BENGAL

Vol. II, 1936

CHECKED 1973

SIR·WILLIAM·JONES
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Issued August, 1938

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Officers and Members of Council

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1938

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ROYAL ASIATIC SOCIETY OF BENGAL

PRIVILEGES OF ORDINARY MEMBERS

(a) To be present and vote at all General Meetings, which are held on the first Monday in each month except in September and October.
(b) To propose and second candidates for Ordinary Membership.
(c) To introduce visitors at the Ordinary General Meetings and to the grounds and public rooms of the Society during the hours they are open to members.
(d) To have personal access to the Library and other public rooms of the Society, and to examine its collections.
(e) To take out books, plates, and manuscripts from the Library.
(f) To receive *gratis* copies of the *Journal and Proceedings* and *Memoirs* of the Society.
(g) To fill any office in the Society on being duly elected thereto.

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YEAR-BOOK

OF THE

ROYAL ASIATIC SOCIETY OF BENGAL

VOLUME II

1936

स्टाक प्रमाणीकरण १९८४-१९८५

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NOTICE

His Majesty, the King Emperor, has been graciously pleased to grant permission to the Asiatic Society of Bengal to use the title ' Royal ' before its name.

The Society, therefore, will henceforth be known as the ' Royal Asiatic Society of Bengal ', and the *Journal* and *Year-Book* will be called *Journal of the Royal Asiatic Society of Bengal* and *Year-Book of the Royal Asiatic Society of Bengal*, and the abbreviations for references will be : JRASBL.; JRASBSc.; and YBRASB.

Calcutta,
1, Park Street,
August, 1938.

Johan van Manen,
General Secretary,
Royal Asiatic Society of Bengal.

Year-Book, Royal Asiatic Society of Bengal, 1935.

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पुस्तकालय
गुरुकुल कांगड़ी विश्वविद्यालय
हरिद्वार

PROCEEDINGS OF THE ANNUAL MEETING, 1936.

FEBRUARY.

The Annual Meeting of the Asiatic Society of Bengal was held on Monday, the 3rd February, 1936, at 5-30 P.M.

PRESENT.

SIR LEWIS FERMOR, KT., O.B.E., A.R.S.M., D.Sc., F.G.S., M.INST.M.M., F.R.S., F.A.S.B., President, in the Chair.

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Barwell, Lt.-Col. N.
Bent, Mr. W. A.
Bhose, Mr. J. C.
Biswas, Mr. Kalipada
Bogdanov, Mr. L.
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Heron, Dr. A. M.
Hobbs, Mr. H.
Hora, Dr. S. L.
Hosain, Dr. M. H.
Jack, Hon'ble Mr. Justice R. E.
Klebe-Brandt, Dr. A.
Knowles, Lt.-Col. R.
Ledrus, Rev. Fr. M., S.J.
Mahindra, Mr. K. C.
Mahtab, Maharaj-Kumar U. C., of Burdwan
Majumdar, Mr. N. G.
Manen, Mr. Johan van
Mitter, Mr. S. C.
Modi, Mr. J. R. K.
Mukherjee, Dr. J. N.
Mullick, Mr. M. L.
Olpadvala, Mr. E. S.
Pasricha, Capt. C. L.
Rahman, Mr. S. K.
Rao, Mr. U. S.
Rossetti, Mr. F. F.
Singh-Roy, Lt. S.
Sinh, Kumar Raghubir
Sinha, Kumar S. C.
Sircar, Mr. Ganapati
Sommerfeld, Mr. A.
Stapleton, Mr. H. E.
Urquhart, Dr. W. S.
Vidyabhusan, Mr. A. C.
Wadia, Mr. D. N.
Wilson, Dr. H. E. C.

and others.

Visitors :

Barwell, Mrs.
Basak, Dr. M. N.
Basu, Mr. B. K.
Bhose, Mr. S.
Bingham, Mr. George E.
Bishop, Mr. H. C. W.
Bishop, Mrs.
Biswas, Mrs. K. P.
Biswas, Mr. P. C.
Bose, Dr. G. S.
Chatterjee, Dr. M. M.
Covaloff, Miss O.
Deuster, Mr. R. H.
Dutt, Mr. D.
Dutt, Mr. S. C.
Ellis, Mr. Norman A.
Emanuelov, Mrs.
Fermor, Lady
Flury, Mr. E. C.
Francoil, Mr. J. H.
Gee, Mrs.
Ghose, Mr. D. C.
Hand, Dr. Henry
Holy, Dr. Ing. Ian

Visitors :

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Kar, Mr. Haridas
Khan, Mr. N. Ali
Khanna, Mr. K. L.
Knight, Rev. P.
Knight, Mrs.
Lacey, Mrs. Patrick
Mitter, Mr. N. C.
Ojha, Mr. Amrit Lal
Patterson, Hon'ble Mr. Justice D. C.
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Ray, Mrs.
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Ross, Mr. J. B.
Sinha, Mr. R. K.
Sommerfeld, Mrs. A.
Spencer, Dr. E.
Thomas, Mr. R. A. S.
Townend, Mrs.
Urquhart, Mrs.
Verstraeten, Rev. Fr. A., S.J.
Worthington, Mr. R. H.

and others.

The President in declaring the Annual Meeting open said :—

'LADIES AND GENTLEMEN,

I have to my regret to announce that H.E. the Governor, our Patron, is prevented from attending our meeting on account of absence from Calcutta. He has, however, expressed his good wishes for the success of our function and it is my pleasant duty to communicate this message to you.'

The President ordered the distribution of the voting papers for the election of Officers and Members of Council for 1936, as well as the voting papers for the election of Ordinary Fellows proposed by Council, and appointed Messrs. H. Hobbs and L. Bogdanov to be scrutineers.

The Annual Report was then presented. (See page 44).

The retiring President then delivered his Annual Address. (See page 9).

The President called upon the scrutineers to report and announced the result of the Council Election. (See page 33).

The President said :—

'LADIES AND GENTLEMEN,

I now announce the result of the Council vote. On the report of the scrutineers I have the pleasure to declare all the candidates for the next year set forth in the ballot paper duly elected.

I would propose that in communicating his election as President to His Excellency, the Governor of Bengal, we should express our thanks to him for having given us the permission to do so.

By this election we have revived an old tradition, as the Society during its long career has had the honour of having three Viceroys and five Governors of Bengal as its Presidents. Sir John Anderson himself is a scholar of considerable distinction, and science has lost what Government has gained by the circumstances of his career.

As I have not stood for re-election to the Council on account of my impending departure from India, I will now vacate the

Chair and request Sir David Ezra, the Senior Vice-President present, to occupy it in the unavoidable absence of our new President.'

Sir David Ezra said :—

'I think that as this is probably the last time that we shall have the privilege of the presence of Sir Lewis Fermor in our midst, I express the desire of all present in proposing that he should continue to occupy the Presidential Chair for the rest of the evening.'

The Meeting agreed, and Sir Lewis resumed the Chair.

The Chairman then made the following announcements :—

'I have now great pleasure in announcing that, having heard the report of the scrutineers, I declare the following Ordinary Members :—

Dr. S. K. Chatterji,
Dr. A. M. Heron,
Mr. N. G. Majumdar, and
Nawab Habib-ur-Rahman Shirwani,

to have been duly elected Ordinary Fellows of the Asiatic Society of Bengal.'

'I have now to announce that papers from six candidates have been received in competition for the Elliott Prize for Scientific Research for the year 1935 which was for Geology and Biology, including Pathology and Physiology and the Trustees have judged the papers of one candidate deserving of the award.

The prize for the year is accordingly awarded to Mr. Kalipada Biswas of Royal Botanic Garden, Sibpore, for meritorious publications on the subject of Botany.

The prize for 1936 will be for work in Mathematics regarding which a detailed announcement has been published in the *Calcutta Gazette* and the *Bihar and Orissa Gazette.*'

The Chairman conveyed his hearty congratulations to Mr. Biswas.

The Chairman then said :—

'My next announcement regards the Barclay Memorial Medal. This medal is awarded biennially for conspicuously important contributions to Medical or Biological science with special reference to India.

This year the medal is awarded to Dr. Birbal Sahni, Professor of Botany, Lucknow University, for his long-sustained and distinguished labours in the field of Botanical research.'

'My next announcement regards the Joy Gobind Law Memorial Medal. This medal is awarded every three years for conspicuously important contribution to the knowledge of Zoology in Asia. This year the medal is awarded to Professor Lew Semenowitch Berg, Chief of the Bureau of Applied Ichthyology and Professor of Geography, State University, Leningrad, Russia.'

do we grieve at the passing of His Majesty King George V, but as grateful beneficiaries of the system of Government that he personified. We also extend our deepest sympathies to Queen Mary, and to the new King-Emperor, Edward VIII, in their personal loss. In extending this sympathy we also welcome our new King, and pray that during his reign the conditions may continue that render possible the peaceful researches of men of letters and of science, and the fruitful production of works of art by those who are suitably gifted.

Two days before the death of King George occurred that of Rudyard Kipling. With the almost simultaneous passing of these two notable personalities it will seem to many that an era in British history has come to an end.

It is the practice for the President of your Society to deliver an Address at the annual meeting held customarily on the first Monday in February. This privilege falls to my lot once more.

The General Secretary has already given you a résumé of the report of the Council of the Asiatic Society of Bengal upon the progress of the Society during the calendar year 1935. There are no special points in this account that require further elaboration by me, but it is necessary to refer to the death of three of our Fellows—two during the year 1935, and one at the beginning of this year.

The senior of these was Dr. P. J. Brühl, who has been a member of this Society since 1909 and a Fellow since 1912. After a distinguished career in Calcutta, first at the Engineering College, Sibpur, and later at the University of Calcutta, Dr. Brühl retired to Bangalore, where he resided until his death. Brühl was known not only for his original researches in Botany, but was a competent exponent of several other branches of science including Geology and Physics. One of the medals of the Society, the Paul Johannes Brühl Memorial Medal, has been named after him.

Whilst Brühl left us in the fulness of years, Lt.-Col. H. W. Acton, a member of the Society since 1921 and a Fellow since 1930, has died long before the allotted span of life, thereby depriving the School of Tropical Medicine, Calcutta, of a chief whose versatility in medical research has long been a source of inspiration to the school.

Since the year ended, we have lost a third Fellow, namely Dr. A. C. Woolner, Vice-Chancellor of the University of the Punjab and known throughout India for his oriental scholarship. Woolner had been a member of the Society since 1906 and a Fellow since 1927.

I will now refer to a matter that will be a source of pleasure and gratification to you all, namely that my successor in this Chair is to be His Excellency Sir John Anderson, Governor of Bengal, who has hitherto been on our rolls as a Patron, but has recently been elected an Ordinary Member of the Society.

It may interest you to learn that on several occasions in the past we have been honoured by either the Viceroy or the head of the Province of Bengal accepting the office of the President of this Society. The following is a list :—

Sir John Shore (later Lord Teignmouth), Governor-General of India ..	1794 to 1797
The Earl of Moira (later Marquess of Hastings), Governor-General of India..	1815 to 1820
Sir Henry Hardinge (later Lord Hardinge), Governor-General of India ..	1844 to 1847
Sir Ashley Eden, Lieutenant-Governor of Bengal	1881 to 1883
Sir Charles Elliott, Lieutenant-Governor of Bengal	1893 to 1894
Sir John Woodburn, Lieutenant-Governor of Bengal	1900 to 1902
Sir Andrew Fraser	1905 to 1907
Lord Carmichael, Governor of Bengal ..	1913 to 1915

We shall all be glad to welcome the addition of Sir John Anderson's name to this illustrious list ; it will be especially fitting that Sir John, as His Majesty's representative in Bengal, should be President when the Society receives the honour of being permitted to prefix the title ' Royal '.

II. The Depletion of India's Coal Reserves.

A perusal of the records of our Society will show that the Address of the President at the annual meeting is normally devoted to a subject of academic interest, either in arts, letters or science : and last year I addressed you upon the development of scientific research in India to the end of the nineteenth century, thereby conforming to the normal. This trend arises not from any rule of the Society, but from its usual interests. According, however, to the paraphrase of the well-known passage in the original Address of our Founder, Sir William Jones, describing the objects of our Society :

> ' The bounds of its investigations will be the geographical limits of Asia, and within these limits its enquiries will be extended to whatever is performed by man, or produced by nature.'

This year I propose to address you upon one of the products of nature, namely coal, in one of its economic aspects, namely the available resources of coal in India, and the fact that the quantity of this substance ' produced by nature ' that will become available for use by man depends upon the manner in which mining operations are ' performed by man '.

Annual value of Indian coal production.

When I arrived in India in the fall of 1902, the mineral industries of India were still in their comparative infancy, as is shown by the fact that the average annual value of the total Indian production of all minerals was only £4,253,706, the value for 1903 being £4,988,527. From then onwards successive quinquennial periods showed a rapidly increasing total value until the period 1919–1923, as is shown by the following figures :—

Period.	Average annual value of total mineral production of India.	Average annual value of coal production of India.	Ratio of value of coal production to total value.
	£	£	Per cent.
1898–1903 ..	4,253,706	1,225,677	28·8
1904–1908 ..	6,716,325	2,139,249	31·8
1909–1913 ..	8,393,222	2,969,305	35·4
1914–1918 ..	11,822,743	4,419,174	37·4
1919–1923 ..	24,615,727	9,252,649	37·6
1924–1928 ..	23,875,578	8,305,764	34·8
1929–1933 ..	17,368,567	5,875,009	33·8
1934	17,700,015	4,741,425	26·8

The year of maximum production was 1924 with a total value of £27,683,898.

During the same 36 years (1898–1933) the average annual value of the coal produced rose from £1,225,677 in the period 1898–1903 to £9,252,649 in the period 1919–1923, falling to £5,875,009 in the period just ended. The year of maximum value of production of coal was also 1924, with a value of £10,766,433. The ratio of the value of the coal production to that of all minerals including coal has ranged between 28·8 per cent. and 37·6 per cent. with an average value of 35·2 per cent. for the 7 periods (36 years) or 33·9 per cent. if 1934 be included. These figures illustrate vividly the value of the coal industry to India.

Annual production of coal.

The variation in the annual value of the coal production of India is due, of course, partly to variations in the quantity of mineral won and partly to variations in market price per ton. This can be seen by comparing the figures of average annual value given above with the following figures of average annual production and average pit's mouth value per ton for the same periods :—

Period.	Average annual production.	Average pit's mouth value per ton.
	Tons.	Rupees.
1898–1903	6,219,790	2·95
1904–1908	10,066,934	3·19
1909–1913	13,509,472	3·30
1914–1918	17,951,583	3·69
1919–1923	19,712,213	6·25
1924–1928	21,540,607	5·21
1929–1933	21,776,153	3·61
1934	22,057,447	2·86
Years of maximum production—		
1919	22,628,037	4·50
1930	23,418,734	3·875
Year of maximum price—		
1922	19,010,986	7·69

From a study of these figures it is seen that the increase in the total annual value from 1898 to 1918 is due mainly to large increases in the quantity of coal produced aided by a slowly rising value per ton. During the next period 1919 to 1923, there was a proportionately smaller increase in the average annual production but an enormous increase in value of the annual coal production due mainly to a very great increase in price, which reached its maximum in 1922 at Rs. 7·69 per ton. The high prices during this period were at least in part due to wagon shortage. Since then the value of the total coal production has fallen steadily due to falling prices per ton on a roughly steady output, averaging 21½ to 22 million tons from 1924 to 1934.

Development of new coalfields.

Now this great increase in the average annual output of coal from 6·2 million tons in the period 1898–1903 to 21·5 million tons in the period 1924–1928, or from 4·6 million tons in 1898 to 22·6 million tons in 1919, has meant great activity in the development of already opened coalfields, particularly of the Jharia and Raniganj fields, and of the building of railways to new fields that were not producers at the beginning of the period under discussion. The new fields developed have been Pench Valley (1903), Ballarpur (1904), Bokaro (1909), Rampur (1910), Jainti (1915), Sasti (1920), Sohagpur (1921), Talcher (1923), Karanpura (1925), Korea (1930), Tandur (1931).

Over-production.

In retrospect it is evident that the rapid expansion in the demand for Indian coal that prevailed up to 1919 when the output reached 22·6 million tons was not to continue, for the production of 1934 was only 22·1 million tons. And as the coalfields of India opened in 1919 were able to cope with the existing requirements as well as to develop for the future, the coalfields that have been developed since this date, six in number, have caused a position of potential over-production. As these six coalfields between them were responsible for the production of over 1½ (1·54) million tons in 1934, whilst the five fields opened between 1903 and 1915 have increased their production by over 1½ (1·58) million tons between 1919 and 1934, we have a statistical reason for the depression in the coalfields of Bengal and Bihar and Orissa of recent years. Irrespective of source, the total output of coal in India for the 36 years, 1898 to 1933, has been 553,883,760 million tons or 575,941,207 tons to the end of 1934, or probably nearly 600,000,000 tons to the end of 1935.

Wasteful methods of work.

What is of great concern to us is the effect of these factors upon the available reserves of coal in India. This problem has been a matter of concern both to the Government of India and to the public in India for some years and has been in particular a matter of study by the Geological Survey of India ; for it is common knowledge that the methods of work in many of the coal mines in India have for many years been such as do not commend themselves to geologists and competent mining engineers. And the tales of fire, flood and subsidence from the Jharia coalfield in particular and the evidence visible to all in the shape of pillars of cloud by day and of fire by night show that the extraction of some 600 million tons of coal between 1898 and the end of 1935 must have meant the depletion of available reserves to a vastly larger extent.

Mr. Treharne Rees' report.

The Government of India became aware of the situation in the coalfields of Bengal and Bihar and Orissa as long ago as 1917 and engaged a competent Mining Engineer from England, Mr. R. I. Treharne Rees, to report on the position, which he did in 1919.[1] Mr. Rees directed his attention to four problems :—

(1) Methods of extraction,
(2) The generation of power at the collieries,
(3) Coking,
(4) Handling and despatch of coal at the collieries,

and found that considerable economy could be effected under each head. As improvements under (2), (3) and (4) would apply only to the coal extracted from the ground, it was evident that the principal necessity was to improve the methods of extraction and decrease the very serious losses that Mr. Rees reported as existing. To effect this Mr. Rees advocated the extensive introduction of hydraulic stowing in the Jharia and Raniganj coalfields, and wrote a special appendix to his report on this method, in which he estimated that in the case of new workings where the coal was not already cut into pillars the cost of sand stowing would be from 10 to 14 annas per ton of coal whilst in the case of extracting pillars already formed, it would be 16 to 20 annas per ton.

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[1] 'Report on the Methods of Coal Mining in India', pp. 1–12 with Appendix on Hydraulic Stowing, pp. 1–5, Calcutta, (1919).

For those not versed in mining practice I should explain that the majority of the Indian coal mines are worked on the bord and pillar system, in accordance with which a seam is opened up by driving galleries in two sets at right angles isolating rectangular pillars left to support the roof. These pillars may contain 50 to 60 per cent. of the coal in the seam, and the coal they contain cannot be extracted without the roof falling in, unless the galleries are packed with rock or sand. The filling of the voids with sand or rock either by hand or by flushing in with water is known as stowing, usually hydraulic stowing.

The Coalfields Committee's report.

As a result of Mr. Treharne Rees' report the Government of India appointed a strong Committee known as the Coalfields Committee containing amongst its members the Chief Inspector of Mines, the Director, Geological Survey of India, the Mining Engineer to the Railway Board, nominees of the Indian Mining Association and the Indian Mining Federation, a representative of the Zamindars and of an Agency firm in Calcutta, the Committee being under the Chairmanship of the Commissioner of Chota Nagpur Division, with a Civilian Secretary (Mr. L. B. Burrows). In appointing this Committee the Government of India referred to Mr. Treharne Rees' report in the following terms :—

> 'The principal recommendations of Mr. Treharne Rees relate to the appointment of an inspecting and controlling authority for the supervision of the terms of leases, more efficient methods of coal extraction, including rotation of working and hydraulic stowage, the improvement of the conditions of colliery labour, the more economic use of power and more general employment of electricity, the improvement of methods of cokemaking, the introduction of coal mixing, the handling and despatch of coal, more extended employment of screening, and the possibilities of the manufacture of briquettes.'

The Coal Committee reported in 1920[1] and in their report recommended State control of the industry. The Coal Committee, visualising the possibility that the increase in India's annual output of coal from 5 million tons to 20 millions in 20 years would continue at the same rate, so that the output would be over 50 million tons by 1935, wrote (p. 19) :—

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[1] Report of the Coalfields Committee, pp. 1 to 199, Calcutta, (1919).

> 'Unless her resources are strictly conserved and the use of coal of lower grade substituted, wherever possible, for that of the better coking qualities, India may be faced at no very distant date with the loss of her metallurgical industries for want of coke.'

Actually, as already noticed, the expected expansion of output has not taken place; none the less the passage quoted is true, and the danger has been much magnified by the passage of years.

The principal conclusions of the Coal Committee were (p. 30):—

> '(1) That no improvement in the present wasteful methods can be expected without State interference, that such interference should take the form of a controlling authority with legal powers designed to ensure conservation and economic extraction, and that such authority should consist of a new Government department and a board sitting in Calcutta.
>
> (2) That a steady and sufficient supply of wagons, with the requisite facilities for moving them, is the most urgent need of the industry.
>
> (3) That sand-stowing should be made compulsory within certain limits and with provision for compensation, and that funds for the purpose should be raised by a cess and a duty of eight annas a ton on all coke and coal; that the cess should be imposed as soon as possible, be collected by the railway companies on despatches, and be administered by the controlling authority.'

From both Mr. Treharne Rees' report and that of the Coal Committee it appeared that the minimum amount of coal being left in the ground was 33 per cent., although to some it appeared that this figure was conservative and that the waste underground was greater. The question of wagon supply has long been rectified, but no action has been taken on recommendations (1) and (3) of the Coal Committee's principal conclusions.

The Government of India did, however, issue in 1921 a letter to Local Governments, Mining Associations, Chambers of Commerce, and other interested bodies, in which the Government of India gave their provisional conclusions regarding the recommendations of the Coal Committee.

In their replies to this letter one or other of the various bodies consulted objected to almost every conclusion of the Government of India, and as a result the Government took no action on the report of the Coal Committee. I am betraying no secret when I mention that the principal reasons why the Government of India did not take action on the Coal Committee's report were the facts that we did not know definitely the extent of the coal reserves of India of higher grade and therefore the seriousness of the admitted losses in working *vis-a-vis* the available reserves, nor did we know the extent to which it would be possible by methods of washing to improve the lower grade coals. These problems and the question of the reserves of sand available for stowing were therefore entrusted to the Geological Survey of India for examination. It was soon shown that no help was to be expected from processes of beneficiating lower grade coals,[1] and that the supplies of sand available for sand-stowing were adequate.[2] Further, Sir Edwin Pascoe decided to institute a resurvey of the Jharia and Raniganj coalfields and a re-examination of all the other fields, and in 1925 formed a special Coalfields Party of the Geological Survey of India under the superintendence of Dr. C. S. Fox. This was necessarily a long task, and has already led to the publication of 5 memoirs, one from the pen of Mr. E. R. Gee, and the remainder by Dr. Fox, with one memoir still to come. With the completion of Dr. Fox's memoir on 'The Lower Gondwana Coalfields of India',[3] the views of the Geological Survey of India on the available reserves of coal of all qualities in India were placed before the public. Dr. Fox's estimates were, of course, available to Government before this, and after the Government of India had rejected the coal restriction scheme proposed by the mining community in 1934, I was asked, as the then Director, Geological Survey of India, to prepare for publication a note on Indian coal reserves, in order to educate public opinion in India on the seriousness of the situation prior to the introduction by Government of measures of conservation, which, it is no secret, the Government of India have in preparation.

Investigations of the Geological Survey of India.

My note has been published as No. 54, *Bulletin of Industries and Labour*, issued in July 1935; and also, in order to ensure wider publicity, in the *Records of the Geological Survey of India.*[4] The data assembled in this note were collected in 1933, and represent the position as it stood at the end of 1932.

Note on 'India's Coal Resources'.

The object of the publication of this note was to draw public attention to the alarming position that is rapidly being created in India owing to the methods of work in Indian coalfields, especially in Jharia. It was shown in this note, for instance, that if active measures were not undertaken to improve the methods of work in the Jharia field, this field would be exhausted in 33 years (from 1932) as a maximum, instead of lasting 80 years as was otherwise possible. My note has so far failed in its purpose in that two of the leading journals of Calcutta, the *Statesman* and *Capital*, each missed the main point. They both referred to my estimate that the 4,500 million tons of coal of good quality would be exhausted in 100 years if we allow for a recovery of 50 per cent. only, and an average annual production of only 22,500,000 tons; or in 75 years, if the future average annual extraction be 30 million tons. But neither journal mentions the much more serious fact that the 1,700 million tons of coking coal so essential to the existence of the iron and steel industry will last on the average only 33 years from 1932, at the present rate of extraction, and with a recovery of 50 per cent.; but that such coal would last 80 years if, with sand-stowing, the extraction were improved to 80 per cent. It is because of my failure in the note mentioned to impress the public with the seriousness of the situation that I have decided to utilise the present occasion again to discuss coal reserves.

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[1] W. Randall, 'Froth Flotation of Indian Coals', *Rec. Geol. Surv. Ind.*, LVI, pp. 220–229, (1926).

[2] G. V. Hobson, 'Sand Supply in the Upper Damodar River', *Trans. Min. Geol. Inst. Ind.*, XXI, pp. 321–337, (1927). See also C. S. Fox, 'The Jharia Coalfield', *Mem. Geol. Surv. Ind.*, LXI, pp. 105–107, (1930); and E. R. Gee, 'The Geology and Coal Resources of the Raniganj Coalfield', *op. cit.*, LXI, pp. 298–302, (1932).

[3] *Op. cit.*, LIX, (1934).

[4] 'India's Coal Resources (Being a Note on the Reserves available in India of Good Quality Coal, Including Coking Coal),' *Rec. Geol. Surv. Ind.*, LXIX, pp. 336–352, (1935).

Total Indian coal reserves.

It is necessary here to give only a résumé of my note. The data in it are based largely on Dr. Fox's memoir on 'The Lower Gondwana Coalfields of India' already referred to. According to Dr. Fox, the quantities of coal of all qualities in the Gondwana coalfields, which are responsible for 98 per cent. of India's coal output, are 60,000 million tons; of which 25,000 million tons occur in the Damodar Valley coalfields, namely the Raniganj, Jharia, Bokaro, and Karanpura coalfields. If we restrict the totals to include only those seams over 4 feet thick and averaging 20 per cent. of ash (not exceeding 25 per cent. ash on a moisture-free basis) and lying within 1,000 feet of the surface, then, according to Dr. Fox, these estimates fall to 20,000 million tons, of which 10,000 tons lie in the Damodar Valley coalfields.

Reserves of coal of good quality.

Dr. Fox next forms estimates of coal of good quality, taking into account only seams of upwards of 4 feet in thickness and with ash not exceeding 16 per cent. on a moisture-free basis. Because of the better grade of coal considered, he takes into account coal down to a depth of 2,000 feet. This leads to a total of 5,000 million tons, of which 3,150 million tons lie in the Jharia and Raniganj fields. This 5,000 million tons can be split up into—

3,500 million tons at 0 to 1,000 feet from the surface.
1,500 ,, ,, ,, 1,000 to 2,000 ,, ,, ,, ,,

Of this, the 3,500 million tons is included in Dr. Fox's total of 20,000 million tons.

After considering carefully Dr. Fox's estimates for the various fields and modifying his figures for the Bokaro and Karanpura fields, I find we can still reckon on a total of 4,500 million tons of coal of good quality.

Life of reserves of coal of good quality.

I have already brought to your notice that the earlier anticipations of expansion of the Indian coal industry have not been realised, and that the industry has been practically stationary from 1919 to 1934.

If we assume no further growth in the industry and an average annual consumption of 22,500,000 tons, the 4,500 million tons referred to above would last for 200 years, if 100 per cent. extraction were secured. Judging, however, from the data given in Dr. Fox's memoir, unless something effective is done to cause an alteration in the system of working coal in India, not more than 50 per cent. and probably less of this coal will, in fact, be brought to the surface. This means that without allowing for any growth in the coal industry of India, reserves of good quality coal will be exhausted in 100 years. This is a position which the nation cannot contemplate with equanimity.[1]

If, however, we assume that when the present world depression ceases India will resume her industrial progress, we must, even after allowing for the increasing competition of water power, oil fuel and petrol as sources of energy, assume a substantial growth in India's consumption of coal. On an average consumption of coal at the rate of 30 million tons annually, 4,500 million tons of coal would last 150 years with a 100 per cent. extraction, 75 years if only 50 per cent. of the coal be won.

In these last two paragraphs I show the position that would arise if all demands were met from coal of good quality only. This, of course, will not happen; but, in practice, market and technical considerations cause by far the greater portion of India's requirements to be met from her supplies of coal of good quality. If we could assume an average supply in the future of 20 per cent. of our requirements from second-class coals, and 80 per cent. from first-class coals, the saving in first-class coal would prolong the periods mentioned in the previous two paragraphs by 25 per cent. Should average higher prices for coal prevail in the future than in recent years, then the proportion of second-class coal worked would increase, with a corresponding prolongation of the periods mentioned in the two previous paragraphs.

Reserves of coking coal.

As is well known, India is the possessor of enormous supplies of iron-ore of the very highest quality, estimated for the iron-ore fields of Bihar and Orissa alone as of the order of 3,000 million tons. (There are also vast quantities of iron-ore in other parts of India.) To smelt this ore by methods at present in vogue, the use of high-quality metallurgical coke is necessary, in the proportion, stated roughly in terms of original coal, of 1 ton of coal to 1 ton of iron-ore smelted. This means that if India is to take the position in the world as a smelter of iron and steel that appears justified by her reserves of high grade iron-ore, we should be able to see in India available for the use of this industry not less than 3,000 million tons of good quality coal suitable for the manufacture of metallurgical coke, that is to say, a greater amount of good coking coal than the total of all the good quality coal—coking and non-coking—that will be extracted if present methods of work are continued.

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[1] This is the figure seized upon by the *Statesman* and *Capital* and regarded with comparative placency instead of the much more alarming figure of coking coal to be noticed later.

It is important, therefore, to see what proportion of the 4,500 million tons of coal of good quality referred to above can be regarded as suitable for the preparation of metallurgical coke. Dr. Fox gives figures totalling to 1,500 million tons in the Giridih, Raniganj, Jharia, and Bokaro coalfields. This total, in my opinion, could be increased to 1,694 million tons or say 1,700 million tons, as at the end of 1932. The following table shows the reserves of good quality coking and non-coking coal in India at the end of 1932 :—

Reserves of good quality coking and non-coking coal in India at the end of 1932.

(In millions of tons.)

Coalfields.	Authority.	Coking coal of superior quality.		Non-coking coal of superior quality.		Total coking and non-coking coal.
		0—1,000 feet.	1,000—2,000 feet.	0—1,000 feet.	1,000—2,000 feet.	0—2,000 feet.
Giridih	Saise	38	..	..	..	38
Raniganj	Gee	73	168	953	607	1,801
Jharia	Fox	737	163	298	52	1,250
Bokaro	Fermor and Whitworth	270	245	7	..	522
		1,118	576	1,258	659	
TOTAL ..	....	1,694		1,917		3,611
				Non-coking coal of superior quality.		
Karanpura* (N. and S.) ..	Spencer	..	..	550*		550
Hutar, Johilla, Burhar ..	Fox	..	..	50		50
Kurasia, Jhilmilli, etc. ..	,, ...	..	..	30		30
Talcher to Korba ..	,, ...	..	..	200		200
Kanhan-Pench ..	,, ...	..	..	30		30
Ballarpur-Singareni ..	,, ...	..	..	50		50
TOTAL ..	....	..	..	910		910
Total coking and non-coking coal ..	....	1,694		2,827		4,521

* Of which 350 million tons assumed to be semi-coking and 200 million tons non-coking.

11.0574

It will be seen that the total quantity of coking coal suitable for the manufacture of metallurgical coke at the end of 1932 may be taken as follows :—

At depths of 0 to 1,000 feet ..	..	1,118 million tons.
At depths of 1,000 to 2,000 feet ..	..	576 ,, ,,
	TOTAL ..	1,694 million tons.

No doubt small additional quantities of good coking coal will be discovered in the future, possibly, for example, in West Bokaro ; but the probable amounts are not likely seriously to alter the problem, and in the total of 1,694 million tons given above, say, 1,700 million tons, we have almost certainly arrived at a figure which is not very far from the truth.

In addition, technical research may show that by blending with strongly coking coals, coals not at present regarded as coking coals, such as the semi-coking coals of Karanpura, may become available to the iron and steel industry. But no allowance can be made for such possibilities, which, after all, are only possibilities.

According to our present knowledge, the best coking coals of India are in the Giridih and Jharia fields. A proportion of the Giridih coal, 9 million tons according to Dr. Fox, is of extra special quality due to its very low phosphorus content. Such coal is suitable for very special metallurgical purposes, such as in the manufacture of ferro-manganese for export, for such alloy must not contain more than a definite amount of phosphorus if it is to compete in the world's markets. This coal is, in fact, the only known coal in India suitable for such manufacture. The Tata Iron and Steel Company manufactures ferro-manganese for its own purposes, but, as this alloy is not for export, the company does not find it necessary to work to the same stringent limits in phosphorus contents as would otherwise be necessary, and, therefore, does not make a claim upon the special coal from Giridih. There is, at the present time, in fact, no existing metallurgical industry in India that demands this coal, and this very special coal is instead being extracted and consumed for railway purposes for which so much other coal is suitable.

Life of coking coals of Jharia.

Apart from Giridih, which is only a small field, the best coking coal in India is in the Bhagaband and Jialgara stages of the Jharia field. The total amount of such coal, according to Dr. Fox's estimate, is 737 million tons down to 1,000 feet from the surface, with an additional amount of 163 million tons between 1,000 and 2,000 feet. Work at present is practically confined to the upper thousand feet. According to Dr. Fox, with the present methods of work, not more than 50 per cent. of this coal will be won, and the remainder will be lost due to collapses, fires, and floods. The total annual extraction from Jharia during the past 10 years has been about $10\frac{1}{4}$ million tons annually. Of this, according to Dr. Fox, from 8 to 10 million tons come yearly from the Bhagaband and Jialgara stages in which all the best coking coal is concentrated. Taking an average figure of 9 million tons, we get the life of the coking coals of the Jharia field down to 1,000 feet from the surface as—

$$\frac{737}{2}\times\frac{1}{9}=41 \text{ years}$$

if present methods of mining be not radically improved. Forty-one years is, however, in excess of the truth. According to Mr. R. R. Simpson in 1929 [1]—

> 'It is estimated that at the present time there are not less than 120 million tons of first class coal standing in pillars which it is impossible to extract by the ordinary method of mining. Partly included in this figure, but largely in addition, there is the great quantity (some hundreds of millions of tons) of coal which cannot be worked by the ordinary methods owing to the necessity for providing underground support for rivers, roads and the network of railways which covers the coalfields.'

Allowing for the extraction since 1929, namely in 1930, 1931 and 1932, of another 27 million tons from these two stages in the Jharia field, we can estimate that at a minimum another 30 million tons of coal has been left standing in pillars, so that allowing for such pillar extraction as has taken place, and pillared coal lost in fires and collapses, and no longer included in the calculated reserves, we can safely place the present quantity of coal standing in pillars at not less than 137 million tons. Nearly 100 per cent. of this will be lost unless some form of stowing is resorted to. This means that, without stowing, our reserves are only 737—137=600 million tons. This quantity corresponds to a life for the Jharia field, if present practice be not revised, of only—

$$\frac{600}{2}\times\frac{1}{9}=33 \text{ years}^{2}$$

a period so trivial as to be equalled by the period of service of, say, a Government servant.

This figure, though not identical with, is of the same order of magnitude as other gloomy predictions of recent years.

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[1] 'The future of the Jharia Coalfield', *Trans. Min. Geol. Inst. Ind.*, Vol. XXIV, page 111. Mr. Barraclough's figures at the end of 1927 was 131 million tons.

[2] Mr. N. Barraclough's estimate is a life of 68 years from 1927 for the Jharia field based on certain calculations. But he goes on to show that this is an exceedingly optimistic figure unless sand-stowing be adopted, *Rec. Geol. Surv. Ind.*, LXII, p. 382. Also *see* Mr. Barraclough's paper 'Coal lost by Fires and Collapses in Indian Coal Mines', *Rec. Geol. Surv. Ind.*, LXII, pp. 385–389, (1928).

An extraction of 100 per cent. of 737 million tons at 9 million tons a year gives an 82-year life for the coking coals of the Jharia field. A 50 per cent. extraction gives a 33-year life. These are the limits. In addition there is the coal between 1,000 and 2,000 feet, namely 163 million tons of coking coal. At 100 per cent. extraction, this adds 18 years to the life, making a total of 100 years. At 50 per cent. extraction, for the coal between 0 to 1,000 feet, the coal between 1,000 and 2,000 feet cannot be taken as adding anything to the reserves, because with a 50 per cent. extraction only of the coals above 1,000 feet, the companies and the field would be involved in such losses due to collapses, fires and floods that much of the deeper coals will be rendered either physically or economically unworkable.

Without sand-stowing and with a *continuance of only the present average rate of extraction*, we can, therefore, put the life of the Jharia field at some 33 years from the end of 1932, now already reduced to 30 years. With stowing it will be somewhere between 33 and 100 years according to the extent to which this process is adopted. If, as a result of sand-stowing, the extraction could be improved from 50 per cent. to 80 per cent., the life of the field would be 80 years, that is, more than double what it would be otherwise.

Utilisation of Indian coking coals.

As it is important to ascertain the extent to which India's reserves of coking coal are being used for one of the principal purposes for which they have been fitted by Nature, I took the figures of production for the 11 years, 1922 to 1932, and estimated that the amount of good quality coking coal removed annually from the four fields in question was :—

		Tons.
Giridih (at 100 per cent. of output)	..	735,000
Raniganj (at 30 per cent. of output)	..	1,870,000
Jharia (at 85 per cent. of output)	..	8,753,000
Bokaro (at 100 per cent. of output)	..	1,595,000
TOTAL	..	12,953,000

By correspondence with known producers, I obtained the amount of coal used for the preparation of hard coke during 1931 and 1932, and the amount of coke manufactured. The figures are :—

		1931. Tons.	1932. Tons.
Total coke manufactured	..	1,309,308	1,214,526
Coal used ..	..	1,754,469	1,635,972
Percentage recovery	..	74·74	74·72

	1931 Tons.	1932 Tons.
Source of coal used—		
Jharia field	1,687,681	1,585,733
Giridih field	33,209	32,724
Bokaro field	21,123	4,637
Raniganj field	12,456	12,878
TOTAL ..	1,754,469	1,635,972
Amount used by the three iron and steel smelting companies..	1,341,055	1,322,969
Amount used by others ..	413,414	313,003

From this statement we see that almost the whole of the hard coke of India is made from Jharia coal. The only exceptions are the use of Giridih coal in the coke ovens at Giridih by the East Indian Railway and the use by the Indian Iron and Steel Company of a small quantity of Bokaro and Raniganj coal (the Chanch seam) and a trivial quantity of Giridih coal in blends with Jharia coal.

The ratio that these figures of consumption of coking coal bear to the production of the respective fields in coking coal is shown below:—

	1931.		1932.	
	Total production of coking coal. Tons.	Consumed in coke making. Tons.	Total production of coking coal. Tons.	Consumed in coke making. Tons.
Giridih ..	713,133	33,209	583,243	32,724
Raniganj ..	1,960,000	12,456	1,925,000	12,878
Jharia ..	8,292,000	1,687,681	7,269,000	158,573
Bokaro ..	1,656,597	21,123	1,348,973	4,637
TOTAL ..	12,621,730	1,754,469	11,126,216	1,635,972

From these figures it is seen that of the total amount of coal won in India in 1931 and 1932 suitable for the manufacture of metallurgical coke, only 13·9 and 14·7 per cent. respectively were used in the manufacture of hard coke. If we adopt Dr. Fox's view that without stowing only 50 per cent. of the coal will be won, then the percentage of coal used in the manufacture of hard coke falls to 6·9 and 7·3 per cent. of the coal extracted, immobilised and wasted underground.

From these figures we also see that with a 50 per cent. loss, nearly 25 million tons in 1931 and 22 million tons in 1932 of good coking coal were consumed, immobilised or wasted underground, with the supply for the manufacture of hard coke of only 1¾ million tons in 1931 and 1⅔ million tons in 1932, the balance being put to other uses.

These figures also show the overwhelming extent to which the manufacturers of hard coke rely upon the Jharia coalfield. Of the coal used in the manufacture of hard coke in 1931 and 1932, 96·2 per cent. and 93·8 per cent. respectively were derived from the Jharia field. This must be taken as an index of the superiority of the Jharia coal for this purpose over the other coals, except the small Giridih field. The Raniganj coal has in the main to be mixed with Jharia coal, and the Bokaro coal is higher in ash contents.

Coking coals available to replace Jharia coal.

Except in so far as the existing iron and steel companies have secured and reserved to themselves adequate portions of the Jharia coalfield, the Jharia coking coals will be exhausted at the end of the period of 33 years, estimated above, unless there is improvement in mining practice; the iron and steel industry will then have to rely upon Bokaro coal and admixtures of Bokaro coal with such Raniganj coals as are still available, and perhaps with semi-coking coals from Karanpura. I have made this qualifying remark with reference to Raniganj coals, because the major portion of the coking coal of this field is in the Dishergarh seam, which is the most valuable steam coal in India and is in great demand for railway purposes and the bunkering of ships. The figures of 33 years given above are based on the premise that extraction continues at the same rate and under the same conditions as before. I understand, however, that the existing iron and steel companies have secured control of substantial sections of the Jharia coalfield. Such companies will doubtless in their own interests use improved methods of work and also extract their coal only at the rate necessary for their own operations. As a result the life of these portions of the field will be prolonged, whilst that of the remainder will be less than 33 years, unless the rate of annual production is reduced, or improved methods of work introduced.

Serious position in Jharia field.

It will be observed that I have reduced Dr. Fox's estimate of 5,000 million tons of good quality coal, both coking and non-coking, to 4,500 million tons, but have increased his estimate of 1,500 million tons of coking coal to 1,700 million tons. Dr. Fox's comment on this, made in his recent Presidential Address to the Mining and Geological Institute of India, is that I am being unduly optimistic, and that the position is very much worse.

Even if my figure of 1,700 million tons is correct, I agree with Dr. Fox that the position is actually much worse than can be deduced from these figures. The Jharia coalfield, as we all know, is now one vast honeycomb in the best seams, and even with stowing much coal that could otherwise have been recovered will be lost due to subsidence and fire. According to one report in the press, the strict accuracy of which I cannot vouch for, out of 133 working coal mines in Jharia about 42 are on fire, a statement that presumably means have portions on fire.

Operations of Coal Grading Board.

A further reason why the foregoing figures may prove to be unduly optimistic is, I regret to say, the unexpected effects of the operations of the Coal Grading Board. The Board was instituted for the purpose of helping the Bengal coal trade to recover lost export markets by ensuring that coal of uniformly high quality was offered for export. The scheme has been as successful as was possible, but it has had an unfortunate and unexpected repercussion due to two causes. The first is that the Indian Coal Grading Board adopted a method of grading coal different from that intended by the Coal Grading Board Act, 1935,[1] by basing their classification on analyses on a moisture-free basis. This is a more favourable treatment than the Act appears to have intended and must allot to many coals a considerably higher calorific value than the coal as used possesses, and consequently must, in many cases, allot a coal to a higher grade than would otherwise be the case, a matter to which I have already drawn attention.[2] The second cause is that the operations of the Indian Coal Grading Board have been extended far beyond the intended scope of the Act, namely to all coal of quality produced in the Damodar Valley coalfields instead of being restricted to coal actually shipped. This result was perhaps inevitable once it was decided to grade the coal seams themselves, instead of issuing certificates for cargoes as actually shipped. As a result thereof every coal owner, whether he was an exporter of coal or not, asked to have his seams graded. In practice this has meant not the grading of a seam as a whole, but section by section, so that instead of a seam being, say, first-grade as a whole, a portion of it was found to be of selected grade.

With the competition of the last few years and the continuous fall in the price of coal, the market has gradually concentrated on selected grade coal, which is now being sold at what must be regarded as rubbish prices. If a seam say 10 feet thick and on an average of first-grade contains a thickness of 4 feet of selected grade coal, this latter only may be worked, with the danger that the remaining 6 feet will never be worked at all. Consequently in addition to the recovery of say only 50 per cent. of those parts of seams that are worked, we have to contemplate the complete loss of the whole of the remainder. In the example given, the recovery on the whole seam would be only 20 per cent.

Remedies.

What are the remedies for this deplorable state of affairs in the Indian coal industry? Much has been written on this point, and I myself have given much thought thereto. I do not propose to enter into a discussion of all the possibilities, but only to state what appear to me to be the practicable and suitable remedies.

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[1] See para. 24 of the Act.
[2] See *Rec. Geol. Surv. Ind.*, LXIII, pp. 190, 191, (1930).

State control of methods of work.

1. The first is that the lessors must be helped, in fact compelled, to look after their own interests, so that lessees are not allowed to work in such a manner that much of the coal that could be won is left underground. This means that the principles of good workmanship must be defined, and a Conservation Staff appointed to see that such methods are followed. As the mineral owners are not, as a rule, likely, for various reasons, to do this for themselves, it means Government intervention. The ideal method would be the formation of a new Government Department, a Coal Conservation Department [this is practically conclusion (1) of the Coalfields Committee]; but Government may find it easier to entrust the duties to the existing Mines Department.

Hydraulic stowing with increased market price.

2. Such improved methods will incidentally entail the extensive introduction of some method of stowing the voids, usually referred to as hydraulic stowing or sand-stowing. In most cases this cannot be done at present market prices, and the general opinion appears to be that sand-stowing will add on the average about one rupee per ton to the cost of mining the coal. The meaning of this is that with coal of the best quality now selling at Rs. 3 or under per ton, so that many companies can only just make a profit whilst many others cannot, even when making no provision for the extraction of pillar coal, that Rs. 4 per ton must be regarded as the minimum price per ton that coal of the best quality must fetch at the mines if the coal is to be worked in a workmanlike manner. The introduction of methods of conservation will in itself probably produce this necessary rise in price because it is obvious that, once improved methods are enforced, producers will not be able in many cases to sell at the present prices and will be compelled to withdraw from the market until remunerative prices are obtained.

Change in methods of grading coal.

3. There should be a change in the methods of grading coal so that certificates are issued only for coal as actually exported. This will entail the sampling and analysis of cargoes as shipped, the cost of which will be trivial in proportion to the value of the cargo. Such a method has long been in use for other minerals, *e.g.* manganese-ore, and must obviously be more satisfactory to the buyer. For with the present method of issuing certificates for seams or sections of seams in the ground, there is no guarantee that the purchaser receives what he has paid for. The purchaser of coal is really buying heat units, if the coal is to be used as fuel only, the purpose for which the major portion of the Indian coal is sold. As a purchaser I should

certainly wish to know the number of calories or heat units to be yielded by the coal purchased, and should therefore wish to buy on analysis; in fact I should prefer to buy on a sliding scale with a price based on a certain number of calories, and a certain ash and moisture percentage. I should expect to pay a bonus for calories in excess and for ash and moisture below the standard figure, and, on the other hand, to exact a penalty for calories in deficit and ash and moisture in excess. In fact, in my opinion, one of the necessary improvements in the coal trade is that coal should be sold on analysis of the coal as actually loaded or delivered with bonuses or penalties according to variations from the analysis agreed upon for the quoted price. Such a change would rapidly remove the disastrous effect of the present grading scheme in directing preferential attention to selected sections of seams, with resultant danger of complete loss of the remainder of the coal.

Ability of railways and industries to stand increased price of coal.

It will be asked whether railway traffic and industries generally can stand a minimum price of Rs. 4 per ton for coal that the welfare of the coal industry requires. One answer to this question is that if the coal industry does not receive a fair price now, the premature exhaustion of many valuable seams will inevitably lead to very much higher prices eventually, with resultant great hardship to Indian industries. That the price of the coal of Bengal, Bihar and Orissa is at present unduly low in proportion to railway freights will be seen when I mention a figure recently given to me of coal offered at Rs. 2-8 a ton in the Damodar Valley costing Rs. 12-8 delivered at Satna in Central India, so that the freight on one ton of coal to Satna would have been equivalent to the cost of 4 tons of coal. As coal is the motive power for railway traffic, this is equivalent to saying that to the public it costs 4 tons of coal to move one ton. Further when one recalls the price that is eventually paid for Bengal coal upcountry and at Bombay, it is evident that an increase in price of Re. 1 would be only a small proportionate increase, and that its adverse effect in competition with coal imported from abroad could be neutralised by a corresponding reduction in long distance railway or shipping freights. The fuel that is the motive power of railways appears to have some claim for special treatment, for without coal there would have been no railways.

I have suggested above that the Damodar Valley coalfields require a minimum price of Rs. 4 per ton for first-class coal. What this price would mean with reference to India's ability to pay can perhaps be judged from the figures shown in the following table in which the price is given in the final year of each of the periods represented in the table on page 5, that is to say, every 5 years:—

Production of Coal from India, Jharia and Raniganj, every 5 years from 1903 to 1933.

	Total production.	Jharia.		Raniganj.		Jharia+ Raniganj.	All-India value per ton.
	Tons.	Tons.	Per cent. of total.	Tons.	Per cent. of total.	Per cent. of total.	Rupees.
1903	7,438,386	2,493,729	*33·53*	3,066,720	*41·23*	*74·76*	2 10 0
1908	12,769,635	6,458,643	*50·58*	4,221,781	*33·06*	*83·64*	3 15 0
1913	16,208,009	8,608,310	*53·11*	5,327,248	*32·87*	*85·98*	3 8 0
1918	20,722,493	10,952,010	*52·85*	6,368,519	*30·74*	*83·59*	4 6 0
1923	19,656,883	10,346,015	*52·63*	5,557,424	*28·28*	*80·91*	7 7 0
1928	22,542,872	10,665,479	*47·31*	6,460,490	*28·66*	*75·97*	3 15 0
1933	19,789,163	8,014,949	*40·50*	6,265,703	*31·66*	*72·16*	3 1 6
1934	22,057,447	9,057,546	*41·06*	6,795,838	*30·81*	*71·87*	2 13 9

From this table you will see that the average value at pit's mouth of all-Indian coal increased steadily from Rs. 2-10 in 1903 to Rs. 4-6 in 1918, and Rs. 7-7 in 1923, falling to Rs. 3-1-6 in 1933, and finally to 2-13-9 in 1934. By 1934, prices had in fact fallen to the price of 31 years ago before the cost of so many items in the cost of production had increased ; and it seems quite evident that in 1934 a fair price to coal must be greater than that of 1903. Other columns of this table show the total production of coal in India for the selected years and also the production of Raniganj and Jharia coalfields separately, from which it will be seen that the production of these two fields rose from nearly 75 per cent. of the total in 1903 to nearly 86 per cent. in 1913, and has since fallen steadily to 72 per cent. Even with this reduced percentage the output of these two fields forms such a large proportion of the total that it is quite evident that the premature exhaustion of either of these fields will be a major calamity to the Indian coal mining industry. It is to be remembered that unless something is done to check present trends, the Jharia coalfield, which during the period reviewed has produced from 33 to 53 per cent. of the total Indian output, will be finished in less than 30 years, except in so far as smelting companies have secured portions of this field for their own purposes, in which case the remainder of the field will be exhausted still quicker.

Whilst recognising that the coal industry requires a higher price for coal in the interests not only of the industry, but also of the welfare of India as a whole, my personal anxiety has been that this increased price should not be obtained by the industry except in return for the *quid pro quo* of improved methods of work.

III. CONCLUSION.

The Government of India are understood to have in hand a scheme for enforcing the conservation of coal in India. My plea to the coal industry is that when this scheme is made public, they do not proceed to decry every part of the scheme that affects them personally, as was done in 1922, but that instead they welcome the scheme as being in the best interests of all in the long run, and that they even invite Government to take a more effective line, if they consider that Government's proposals are not sufficiently far-reaching.

I hope the Society will consider that I have done well in making use of this occasion to draw public attention once more to this very serious question of the certain premature exhaustion of some of India's most valuable coal reserves if nothing effective is done to introduce improved methods of work in the Indian coalfields ; for in a relatively few years India will be faced with what will then be regarded as a national disaster of the first magnitude.

This evening my period of service as your President comes to an end. I am conscious that during my term of office I have not succeeded in effecting all the improvements I should have liked to effect: but this must be the experience of every retiring President. So I take this opportunity of thanking the Council and members of the Society for the encouraging support they have given during this very interesting period, which has included the 150th anniversary celebrations. And, finally, I hand over this Chair to my distinguished successor H.E. Sir John Anderson.

L. L. FERMOR.

OFFICERS AND MEMBERS OF COUNCIL.

ASIATIC SOCIETY OF BENGAL, 1936.

Elected and announced in the Annual Meeting,
3rd February, 1936.

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EXHIBITION ANNUAL MEETING.

LIST OF EXHIBITS SHOWN AFTER THE ANNUAL MEETING OF THE ASIATIC SOCIETY OF BENGAL, ON THE 3RD FEBRUARY 1936.

1. A. F. M. ABDUL ALI.

Miscellaneous Historical Documents.

(1) List of Fees of the Chaplaincy of Fort William.

(Pub. O.C., 26 Oct., 1761, No. 3.)

(2) Copy of letter from Lieut.-Col. Archibald Campbell and Major Henry Watson submitting proposals relative to the construction of docks, etc.

(Pub. Con., 27 Mar., 1770, Nos. 2(*a*), 3(*a*) and 4(*a*).)

(3) Letter from Lieut.-Col. J. Fortnom, Chief Engineer, submitting the plans of Fort William.

(Pub. Con., 24 Mar., 1775, No. 1.)

(4) Draft of a letter to Monsr. Chevalier, acquainting him with the provisions made for the subsistence of the Frenchmen at Chandernagore and for the disposal of the captured property, and requiring him to come to Calcutta, or to depart for Europe.

(Pub. Con., 2 Sep., 1778, No. 11.)

(5) Letter from Messrs. T. Motte and E. Maxwell, Superintendents of Police, suggesting measures for reducing the high price of provisions, and enclosing a plan for regulating the wages of menial servants.

(Pub. Con., 3 Apr., 1786, Nos. 25-26.)

(6) Proceedings of the Committee for enquiring into the causes of the scarcity of silver coin.

(Pub. Con., 6 Dec., 1787, No. 28.)

(7) Copy of the proceedings of the vestry of St. John's regarding leasing the court-house to the Company.

(Pub. Con., 9 Feb., 1795, No. 2.)

(8) Patna Massacre and Grant of the Diwani to E.I. Company.

(Photographic copies.)

(9) Petition of the Greek inhabitants of Calcutta requesting permission to erect a chapel.

(Pub. Con., 11 Apr., 1774, No. 4.)

(10) Copy of Proposals of Agreement of Nubkessen and Gocul Gosaul to farm the Calcutta Town and Lands.

(Pub. Con., 20 Aug., 1767, No. 1.)

(11) Letter from the Rev. J. Z. Kiernander, asking the Board to exempt the Protestant Mission buildings and burial ground from the payment of rent and taxes.

(Pub. Con., 1 Sep., 1777, No. 15.)

(12) Copy of a letter from the Commissioner of Police, transmitting a complete estimate of the value of all the shops, lands, houses, tenements and hereditaments in the town of Calcutta, as well as the assessment of a tax for the year 1781, intimating that for the present the full tax permitted by the ordinance must be levied, and requesting the Board to signify their approval of the assessment in writing.

(Pub. Con., 2 July, 1781, No. 1.)

(13) Letter from the Commissioners of Police, explaining why no tax had been previously levied on the houses of the Chowringhee quarter of Calcutta.

(Pub. Con., 4 Apr., 1787, No. 19.)

(14) Copy of a petition from some native inhabitants of Calcutta setting forth their grievances against the continuance of the assessment, and praying that Mr. Meyer may be authorized to submit a report on the allegations and that their grievances may be redressed.

(Pub. Con., 7 May, 1790, No. 6.)

(15) Petition from Ramgopal Babu and Giridhar Babu, on behalf of the native inhabitants of Calcutta, representing the hardships of the poor people on account of the rigorous enforcement of the collection of house tax in Calcutta, and soliciting redress.

(Pub. Con., 24 Aug., 1792, No. 17.)

2. ARCHÆOLOGICAL SURVEY OF INDIA.

(1) *Terracottas from a big mound near Ghosi, Dist. Azamgarh, U.P.*

Bricks of Gupta and Mauryan period and coins, beads, etc. were also found in the mound which is reported to be fairly extensive and high. Ghosi, according to the Padma Purāṇa, was an important centre of pilgrimage. The height of the mound (which is reported to be from 40–50 feet) and its extensive area (about 117 bighas) indicate that it must be a large settlement continued over a considerable period. The terracottas were found in a confused and disturbed condition. Perhaps a fuller and most systematic exploration of the site might yield antiquities of a much earlier period.

(2) *Navagrāma grant of the Mahārāja Hastin* (*G.E.* [1]98) *from Nagod State, C.I.*

The plate consists of the left half of the first of two plates forming the complete grant. The characters belong to the northern class of alphabets. The language is Sanskrit and the record is in prose. The plate records the grant of a village called Navagrāma in the *rāshṭra* of the Pulinda chief (apparently a feudatory of the *nṛipati-parivrājakas*), by the Mahārāja Hastin in the year 98 (increased by 100). The donees were brahmins of the Parāśara-gōtra and Mādhyandina-śākhā (of the white Yajurveda). The year 198 of the present plate must be considered to be the last date of Hastin whose successor Saṁkshobha issued the Betul grant in the year 199. The earliest known date of Hastin being 156, the year of his Khoh copper-plate, he must have enjoyed a long reign of over 42 years. The known dates of Hastin (156, 163, 191, and 198) and Saṁkshobha (199, 209) are to be referred to the Gupta era. The mention of MAHĀŚVAYUJA-SAṀVATSARA with the Gupta year 198 enables us to fix the date of the present record within a narrow compass. The year 198

G.E. commenced on 9th March, 517 A.D., and the Mahāśvayuja-saṁvatsara ended on or about the 23rd April, 517 A.D., and the present record must be dated within these limits. The missing month may be supplied as Chaitra (in which case the fortnight must be the bright fortnight) or Vaiśākha.

(3) *Sculptures from Sārnāth.*

(i) Sandstone torso of a Yakshi ? or Chauri-bearer assigned to the Śuṅga times. Note crisp and close-fitting waist-girdle and atrophied waist which reminds one of Bharhut.

(ii) Statuette representing the Buddha. The figure displays all the serenity and deep calmness that characterize the best in the Sārnāth type of Buddhas. For sheer æsthetic appeal and overpowering divine inspiration the specimen stands unrivalled. 5th or 6th century A.D.

(iii) The hand of Buddha indicating *abhaya*, 'protection'. Interestingly enough it is painted red and the fingers display a delicacy and slenderness that bespeak the Buddha's universal compassion. 5th or 6th century A.D.

(iv) Bust of a female figure. Facial expression which is divine and indicative of composure points to the figure being that of a goddess. The figure reminds one of a figure of Tārā also from Sārnāth in the Indian Museum which it resembles closely and may be considered to date like the latter from the 8th century A.D.

(4) *Inscribed Buddhist bronzes from the old Buddhist Vihāras at Negapatam, South India.*

Here are 13 such inscribed bronzes representing the Buddha, out of a huge find of about 300. From a study of the inscriptions on them their dates may be said to range from the 11th to the 15th centuries A.D. Buddhism was really flourishing at Negapatam as late as the 15th century A.D. Buddhists from Sumatra and Java settled down at Negapatam in the time of the Śailendras (9th century A.D.) and their religion was patronized by the Imperial Cholas (875–1250 A.D.).

The inscriptions on the bronzes exhibited can be translated as follows :—

1. (6931) *Udayāṇḍālga.*
   'May He (the Lord) live and rule !'
   Here we have a prayer that the Buddha should live and that his Dharma must prosper.
2. (6932) *S'okkar.*
   '(The Lord, who is) Light.'
   There is a reference here to the Buddha as the Supreme Light.
3. (6934) *Tiruvaraṅga Nāyakar.*
   'The lay follower, Tiruvaraṅga.'
   Here we have the donor's name who made the votive offering.
4. (6891) *S'āriyipiḷḷai Nāyakar.*
   'The lay follower, Śāriyipiḷḷai.'
   'Śāriyipiḷḷai is the Tamil equivalent for Śāriputra. The donor is evidently named after Śāriputra.
5. (6908) *Āḷuḍai piḷḷai.*
   '[The lay follower], Āḷuḍaipiḷḷai.'
6. (6910) *S'aṅkāṇḍāḷ Nāyakar.*
   'The lay follower, Śaṅkāṇḍāḷ.'

7. (6913) *Naṅgai piḷḷai Nāyakar.*

‘The lay follower, Naṅgai Piḷḷai.’

Naṅgai Piḷḷai would mean ‘son of the lady’.

8. (6916) *Ānandar Devar.*

‘The Deva Ānanda.’

Here there is a reference to an Ānanda, some Buddhist Bhikshu, or head of the *vihāra*, who is called a Deva.

9. (Y) *Svasti S′rī Tiruvinai tuḷai Periyamānāḷar.*

‘Hail, prosperity. The great *bhikshu*-devotee, the remover of sins and fate's workings.’

The donor is evidently a *bhikshu* of eminence.

10. (6893) *Pālan malai yati arai Devar.*

‘The Deva (*bhikshu*), the king of ascetics, from Pālanmalai.’

The donor is a great *bhikshu* hailing from a hill called Pālanmalai, the whereabouts of which are unknown.

11. (6902) *Mulai S′irama . . .*

An incomplete inscription which speaks of a *S′ramaṇa*, probably a donor.

12. (6915) *Ariyarar Nāyakar.*

‘The lay follower (H)arihara.’

The donor is one Harihara (a Hindu name) who had evidently become a convert to Buddhism.

13. (6940) *Tillai.*

This may be the name of a person. But usually by Tillai one will understand Chidambaram, a place of Hindu pilgrimage in S. India, the seat of Naṭarāja.

3. K. BISWAS.

Some of the common plants of Bhutan including the recent collection of His Excellency Sir John Anderson, P.C., G.C.B., G.C.I.E., Governor of Bengal.

Turner (1783) and Griffith (1838) are the two earliest collectors of Bhutan plants. Cooper of Edinburgh made some collections during 1914-1915. Collection of what was formerly within Bhutan territory up to Sinchula was made by me. But a substantial collection from the border of Western Bhutan up to an elevation of about 18,000 ft. has been made during last October by H.E. Sir John Anderson. The plants and illustrations exhibited are some of the species from these collections representing more or less different altitudinal zones.

4. L. BOGDANOV.

A Persian (Isfahan) stencilled wall-hanging (qalamkār) *said to represent the poet Ḥāfiẓ. Size: 6 feet, 3 inches by 11 feet, 1 inch.*

The poet is seen in the picture sitting on a chair, whilst two attendants, one male and one female, are holding behind him and his companion a curtain intended, obviously, to screen him from indiscreet eyes. A third attendant is sitting on the floor at the poet's feet holding a vessel with wine. In the background a hill with trees and buildings is roughly delineated. In the foreground at the poet's feet can be seen a tank with a swimming water-fowl. The whole is enclosed in a delicately traced treble border of floral designs. The picture bears an inscription in the right-hand top-corner saying that it was made to order for Mīrzā 'Alī al-Ḥākī in 1339 A.H. (=1920 A.D.).

5. CHINTAHARAN CHAKRAVARTI.

A number of Old Manuscripts in the Bengali Script.

(1) Setubandha of Pravarasena (A.S.B. Cat. No. 5801) copied in Lakṣmaṇasaṃvat 102 (?) (1222 A.D.).

(2) Bhaṭṭikāvya (A.S.B. Cat. No. 5057) copied in Śaka 1326 (1404 A.D.).

(3) Bodhicaryāvatāra (A.S.B. Cat. No. 19) copied in Saṃvat 1492 (1435 A.D.).

(4) Prasannarāghava of Jayadeva (A.S.B. Cat. No. 5343) copied in Śaka 1414 (1492 A.D.).

(5) Dharmaratna of Jīmūtavāhana (A.S.B. Cat. No. 2653) copied at a date earlier than Śaka 1417 (1495 A.D.).

(6) Mitākṣarā of Vijñāneśvara (A.S.B. Cat. No. 1870) copied in Lakṣmaṇasaṃvat 399 (1519 A.D.).

(7) Śiśupālabadham (A.S.B. Cat. No. 5073) copied in Śaka 1436 (1514 A.D.).

(8) Kirātārjunīya (A.S.B. Cat. No. 5039) copied in Śaka 1438 (1516 A.D.).

(9) Śūdrapaddhati of Apipāla (A.S.B. Cat. No. 2141) copied in Śaka 1442 (1520 A.D.).

(10) Śūdrapaddhati of Apipāla (A.S.B. Cat. No. 2142) copied in Śaka 1446 (1524 A.D.).

(11) Commentary on Rāvaṇabadha (A.S.B. Cat. No. 5802) copied in Śaka 1457 (1535 A.D.).

(12) Mahābhārata (Droṇaparvan) (A.S.B.) estimated to be 400-500 years old.

(13) Kṛṣṇakīrtana of the Library of the Vaṅgīya Sāhitya Pariṣat (supposed to have been copied towards the end of the 14th century).

(14) Harivaṃśa of the Library of the Vaṅgīya Sāhitya Pariṣat copied in Śaka 1387 (1465 A.D.).

(15) Mahābhārata (Ādiparvan) of the Library of the Vaṅgīya Sāhitya Pariṣat copied in Śaka 1422 (1500 A.D.).

(16) Raghuvaṃśam of Kālidāsa of the Library of the Vaṅgīya Sāhitya Pariṣat copied in Śaka 1452 (1530 A.D.).

6. SIR LEWIS L. FERMOR.

(1) *Carved Tibetan book cover.*

Group of mythological figures within an ornamental border. In the centre Avalokiteśvara. To the left Mañjughoṣa, to the right Vajrapāṇi. To the left of Mañjughoṣa, below, the Black Jambhala. To the right of Vajrapāṇi, below, the Yellow Jambhala. Round the central figure various representations of the Buddha showing different mudrās. In the upper row smaller representations of Śākyamuni, Maitreya, Aparimitāyu, Tārā and others.

(2) *A wooden* glud-par *or 'ransom-printer' from Tibet.*

Tibet is a magic-ridden country. In disease, trouble or perplexity the magician is called in to give his help. One of his operations consists in making a kind of scapegoat-images from barley or wheat dough. By proper incantations and the required rituals the evil spirit is imprisoned in this cake to be thrown away. The 'ransom-printer' here exhibited shows on one side the twelve years of the Tibetan year-cycle. If the year is found to be malignant, its influence is also magically transferred to the ransom-cake and thrown away. Another side shows the various authors of misfortune, evil spirits of different kinds, to be dealt with in the same manner. The house of misfortune is also represented, as well as various animals, to be offered in effigy to the gods, a divination table, and other items used in the ritual.

7. GEOLOGICAL SURVEY OF INDIA.

(1) *Miscellaneous collection of geological specimens.*

The exhibit this year is mainly of an economic nature.

A series of specimens, displayed on a flow sheet, illustrates the copper industry which, during the last 5 years, has become firmly established in Singhbhum. The stages of smelting, from the copper ore, are traced; most of the refined copper is smelted with zinc (obtained from Australia), to yield brass (or yellow metal) which is so readily absorbed in the Indian bazaars.

Part of the exhibit illustrates something of the iron and steel industry. Specimens of a furnace charge are displayed—hematite (iron-ore), limestone, and coke.

For comparison with artificial coke, a specimen of natural coke is shown—this has been found along a thin sill of igneous rock which was injected into a coal seam.

Two specimens of coal illustrate the various components of normal coal, and also the curious 'ball-coal' sometimes found in coal seams.

Specimens of kyanite and sillimanite are typical examples of these minerals which have assumed such an importance in the glass and refractory-ware industry.

A large specimen of lepidolite is from an occurrence only recently found in India by an officer of the Geological Survey. Lepidolite is the principal source of lithia.

Bauxite specimens are exhibited, showing their typical structure. India's resources in this ore of aluminium are enormous, and they have yet to be widely exploited.

The rock salt industry of the Punjab is represented by some crystals of rock salt—also by three carvings from rock salt.

Quite a number of meteorites have fallen in India during recent months. They are represented here by three types: iron, stone, and stony-iron meteorites.

The specimens are suitably described by accompanying labels.

(2) *Series of water-colour drawings.*

1. *Mayo Salt Mines, Khewra (Punjab).*

Original water-colour drawing by A. B. Wynne, Geological Survey of India.

This water colour, made by Wynne during his survey of the Salt Range in the seventies of the last century, is illustrative of the type of scenery met with in that area.

The lower parts of the range are composed of the bright red Salt Marl, so prominently shown in this water colour. Within this red marl of the Salt Mine hill just above Khewra village, seams of rock salt totalling at least 500 feet in thickness are included. These deposits have been exploited by mining since early historical times.

2. *Bhooj in Kutch.*

Original water-colour drawing by A. B. Wynne, Geological Survey of India.

This water colour, painted in 1869, shows the dipping Deccan trap and volcanic ash beds of Bhooj, which overlie steeply-dipping sandstones of Upper Jurassic age.

3. *The Girnar Peak from Datar hill.*

Original water-colour drawing by A. B. Wynne, Geological Survey of India.

The rugged hills illustrated in this painting are composed largely of gabbro.

8. S. L. HORA.

Drawings of the Aquarium Fishes of India.

Quite a large number of Indian Aquarium fishes are highly prized in America and Europe but very little attention as hitherto been paid to these forms in this country. A set of drawings of these fishes in their natural colours and habitats has been prepared for exhibition in the Fish Gallery of the Indian Museum.

All the fishes exhibited here are found in ponds and pools in the neighbourhood of Calcutta and can be obtained without much difficulty. Generally, they can be kept in an aquarium with much less attention than the imported and more delicate ‘ Gold Fishes ’.

9. M. HIDAYAT HUSAIN.

Tuḥfat al-Aḥbār fī Uṣūl al-Ḥadīt͟h wa’l Ak͟hbār.

This is an entirely unknown work on the Science of Ḥadīt͟h in which the classification and criticism of Ḥadīt͟h (the record of actions or sayings of the Prophet and his Companions) are described by al-Ḥāfiẓ Abū’l Mafāk͟hir ‘Abdallāh bin ‘Abd ar-Raḥmān bin ‘Abd al-Laṭīf al-Ḥusainī al-Wā‘iẓ.

From the perusal of this work it appears that he was a pupil of eminent Muḥaddit͟hīn (Traditionists) such as ‘Abd ar-Raḥīm bin al-Ḥusain al-‘Irāqr (born A.H. 725, A.D. 1325, died A.H. 806, A.D. 1404), Shams ad-Dīn Abū’l K͟hair Muḥammad bin Muḥammad bin Muḥammad al-Jazarī (born A.H. 751, A.D. 1350, died A.H. 833, A.D. 1429), and G͟hayāt͟h ad-Dīn Abū’l K͟hair ‘Abd ar-Raḥmān (the father of the author).

He wrote the work at Kirmān and dedicated it to the Chief Justice of the city ‘Abd al-‘Azīz at-Tūrānpushtī. The work was completed in A.H. 830 (A.D. 1426).

He is also the author of another work on Ḥadīt͟h called *al-Musalsalāt*. The *Musalsal* is a Ḥadīt͟h (tradition) which can be traced through an unbroken chain of trustworthy authorities to a companion of the Prophet. It records that all the narrators handed down the traditions in question by solemn oath as to its truth or by clasping hands with the hearers in token of good faith. The first method is called *Musalsal al-ḥalf*, the second *Musalsal al-yad*. Of this work also no copies seem to be known.

The copy of the work exhibited is written in a very fine Naskh by 'Abd ar-Raḥmān al-Bahrāmī ash-Shīrāzī.

No copy of the work is found in any public library in India and Europe, nor mentioned in any accessible bibliography.

It was purchased by Mr. Johan van Manen in Calcutta.

The sole value of the volume is not its rarity. Of still greater importance is the nature of its contents. The manner of treatment is methodical, scholarly, and original. It is difficult to explain how so important a work could have escaped the attention of students and bibliographers of Ḥadīth. Its discovery is of importance.

10. JOHAN VAN MANEN.

Some Tibetan Tankas.

Of late years increasing interest has been shown in Tibetan scroll-paintings, or tankas. G. de Roerich has in 1925 published a valuable monograph on the subject in which a large number of such tankas were reproduced. An appreciable amount of material on the subject is now available in print. The statement made in 1925 that 'our present knowledge of Tibetan pictorial art is not sufficient to enable us to discuss various schools of art' remains true.

It is, nevertheless, possible to discuss special points which from time to time arise. The purpose of this exhibit is to draw attention to a style of painting of a very distinct character, of which the examples known to the exhibitor are of a high artistic quality. The style is different from that of the majority of tankas, which are executed in a great variety of colours on the same scroll, and is limited to the use of a black background with all outlines in thin gold lines and the use of only red, or red and white, to colour clothing and skin.

A few samples are exhibited, showing various stages of development, and for purposes of comparison samples of the more common type of tanka are placed in juxtaposition.

11. J. N. MUKHERJEE, S. R. PALIT, *and* B. R. MAZUMDAR.

Displacement of equilibrium at interfaces.

The displacement of the equilibrium in an aqueous solution when shaken with an immiscible solvent can be easily illustrated by using solutions of suitable indicators. The development of acid and alkaline reactions by the double decomposition of neutral salts of strong acids and bases is also illustrated by simple reactions.

12. BARON W. OW-WACHENDORF.

(1) *The Buddha, representing the miracle of Sravasti, flames issuing from both shoulders.*

Grey schist. Found in tribal territory north of Rawalpindi. About 150 A.D.

(2) *Stone Head of a female Goddess.*

Red sandstone. From the Central Provinces. About 500 A.D.

(3) *Crowned figure sitting on a throne. Second figure missing.*

Bronze. Rare specimen from the Kulu Valley. Early VIIIth century A.D.

(4-5) *Two figures, Vishnu and Lakshmi.*

Copper bronze. IXth and XIth centuries A.D. Similar to the Kurkihar and Nalanda Bronzes. Undoubtedly school of Bihar. Found at top of Manikiala Stupa near Rawalpindi.

13. GANAPATI SIRCAR.

A Copper Inscription from Nandapur.

On the east bank of the Ganges there is a village, Nandapur, two miles from Surajgarh, Monghyr, in Bihar. In this village, on the Ganges, there is a very old dilapidated temple, known as the temple of 'Burha Siva'. One portion of it has already been washed away by the Ganges and the remaining portion may go down any time. In this portion, fixed in a wall, this copper inscription was discovered. Mr. U. Ghose sent it to the exhibitor in February, 1929.

Length—6½ inches, with its head about 8 inches. Breadth—4½ inches. Character—Gupta Period. This inscription, not yet deciphered, is exhibited for the first time. Written on both sides—in front 15 lines, on the reverse 4 lines.

14. THE GENERAL SECRETARY.

(1) *The Society's publications of* 1935.

(*a*) Journal and Proceedings.
(*b*) Memoirs.
(*c*) Advance Proceedings.
(*d*) Bibliotheca Indica.
(*e*) Proceedings, Indian Science Congress.

(2) *Some acquisitions of interest to the Library during* 1935.

(*a*) Presentations.
(*b*) Purchases.

(3) *Some recent publications by Members of the Society.*

(*a*) Caland, W: The Kāṭhakagṛihya-sūtra. Lahore, 1925.
(*b*) Chakravarti, Sukumar: Caitanya et sa théorie de l'amour divin. Paris, 1933.
(*c*) Chakravarti, Chintaharan: A Descriptive Catalogue of the Sanskrit Manuscripts in the Vangiya Sahitya Parishat. Calcutta, 1935.
(*d*) Law, Bimala Churn: Śrāvasti in Indian Literature (Mem. Arch. Surv. India, No. 50). Delhi, 1935.
(*e*) Konow, Sten: Saka Studies (Oslo Etnograf. Mus., Bull. 5). Oslo, 1932.
(*f*) Bodding, P. O.: A Santal Dictionary. Vol. 2. Oslo, 1934.
(*g*) Woolner, A. C.: The Jasmine Garland (Kundamala). Translated into English. Oxford, 1935.
(*h*) Chanda, Ramaprasad: Medieval Indian Sculpture in the British Museum. London, 1936.

(*i*) Prasad, Ganesh: A treatise on spherical Harmonics and the functions of Bessel and Lamé. Part I (Elementary). Benares, 1930.
(*j*) Prasad, Ganesh: A treatise on spherical Harmonics and the functions of Bessel and Lamé. Part II (Advanced). Benares, 1932.
(*k*) Tucci, Guiseppe: Indo-Tibetica II. Rin C'en bzaṅ po e la rinascita del Buddhismo nel Tibet intorno al mille. Roma, 1933.
(*l*) Tucci, Guiseppe: Indo-Tibetica III. I Templi del Tibet occidentale e il loro simbolismo artistico. Part I. Spiti e Kunavar. Roma, 1935.
(*m*) Tucci, G. and Ghersi, E.: Cronaca della missione scientifico Tucci nel Tibet occidentale (1933). Roma, 1934.

(4) *Manuscript Drawings of Indian Fish and other animals recently acquired by the Asiatic Society of Bengal.*

These drawings, 146 of fish and 53 of other animals, have been acquired by the Society at the suggestion of Dr. S. L. Hora.

At the top of each drawing is written in pencil the scientific or the vernacular Indian name. In addition there are notes written in an old system of shorthand.

The paper of most of the drawings has a water-mark dated 1794, while some sheets are dated 1798. This shows that the drawings were made towards the end of the eighteenth century.

Now that the drawings are available in India, their history will be worked out in detail and the results presented to the members of the Society in due course. The greatest importance of these drawings lies in the fact that they add a new chapter to the history of Indian ichthyology. So far Hamilton (once Buchanan) has been regarded as the first person who made a systematic study of the freshwater fishes of India, but the drawings under report show that someone had an equally keen interest in the study of these fishes before him.

With the new acquisition, the Asiatic Society of Bengal now possesses a unique collection of manuscript drawings of Indian fishes of great historic value.

(5) *Selection from the Arabic and Persian MSS. acquired during* 1935.

(*a*) *Tārīkh-i-Ishahān*, Two Volumes.
(*b*) *Tārīkh-i-Ibn-i-Asākir*, Seven Volumes.
(*c*) *Tazkiralu'l-Huffaz*, Four Volumes.
(*d*) *Lisānu'l-Mīzān*, Six Volumes.
(*e*) *Tahzīhu'l-Tahzīb*, Twelve Volumes.
(*f*) *Tārīkh-i-Baghdād*, Fourteen Volumes.
(*g*) *Shazarātu'z-Zahab*, Eight Volumes.

ANNUAL REPORT FOR 1935.

The Council of the Asiatic Society of Bengal has the honour to submit the following report on the state of the Society's affairs during the year ending the 31st December, 1935.

1. Ordinary Members.

Gains and losses.—These were as follows during the year :—

Gains.		*Losses.*	
Elections carried forward ..	8	Elections carried over ..	7
New elections	29	Applications withdrawn ..	2
		Elections lapsed	2
		Deaths	10
		Resignations	23
		Rule 38	10
Total ..	37	Total ..	54

Initial total 442 ; net loss 17 ; final total 425.

Rule 38.—This Rule, dealing with members whose subscriptions are in arrears, was strictly applied and the names of 10 Members were subsequently removed from the roll for this cause.

Membership List.—The customary detailed cross-check of the membership lists with the membership card index was made at the end of the year.

Non-resident Members.—Their total at the end of the year was 107, leaving more than ever room for substantial expansion.

Life-members.—The total of our Life-members has decreased by one and now stands at 56. One was lost by death ; and no Members compounded during the year.

Deaths.—This year the loss to the Society by death has been heavy. Amongst the distinguished and especially valued members lost to us, whose memory will be cherished, and for whose departure the Society is the poorer, the following may be mentioned :—

Dr. P. J. Brühl (Life-member, 1909 and Ordinary Fellow, 1912).
Khan Bahadur Abdul Gaffar (Ordinary Member, 1926).
A. G. Lunan (Ordinary Member, 1929).
Dr. Jatindranath Maitra (Ordinary Member, 1918).
F. Williamson (Ordinary Member, 1934).
Dr. Ganesh Prasad (Ordinary Member, 1935).
Dr. Narendranath Basu (Ordinary Member, 1928).

2. Associate Members.

During 1935 one Associate Member was lost by death :—

Rev. Father H. Hosten, S.J. (1910).

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No new Associate Member was elected during the year. The present number stands at 5 ; statutory maximum 15.

3. Special Anniversary Honorary Members.

During the year the Society received to its great regret news of the death of one of the 12 Special Anniversary Honorary Members elected last year at the occasion of its 150th Anniversary :—

Dr. Henry Fairfield Osborn (1934).

4. Institutional Members.

During the year no new institution was admitted to this class of membership.

Their total number remains the same, namely 7.

5. Ordinary Fellows.

On the date prescribed by the regulations for the issue of nomination papers for the election of new Fellows there were no vacancies and consequently no election took place at the Annual Meeting held on the 4th February, 1935.

We lost through death the following two Ordinary Fellows :—

Lt.-Col. H. W. Acton (1930).
Dr. P. J. Brühl (1912).

The following Ordinary Fellow resigned his membership in the Society :—

Sir C. V. Raman (1925).

At the end of 1935 the number of Ordinary Fellows was 44 ; statutory maximum 50.

6. Honorary Fellows.

During the year no scholars were newly elected Honorary Fellows, and the following two distinguished Honorary Fellows were lost by death :—

Dr. Herbert Allen Giles (1917).
Dr. Sylvain Lévi (1920).

Their number at the end of the year was 24 ; statutory maximum 30.

7. Obituary.

During the year the Society received to its great regret news of the death of the following distinguished relations :—

Sir John Thompson (An Ordinary Member, from 1909 to 1933).
Sir D. P. Sarvadhikary (An Ordinary Member, from 1924 to 1935).
Dr. G. N. Mukhopadhyaya (An Ordinary Member, from 1908 to 1931, and Fellow, from 1923 to 1931).

सन्दर्भ ग्रन्थ
REFERENCE BOOK

8. Condolences.

The Council expressed its condolences at the occasion of the death of the following distinguished personality deceased during the year :—

M. L. Finot, First Director of the French School of the Far East.

9. Council.

The Council met 13 times during the year. The attendance averaged 9 of the 19 component members.

The following resolutions of thanks were passed by the Council :—

To the Outgoing Members of Council for their services rendered to the Society and for their valued support given to the Council and a special vote of thanks to Sir Rajendra Nath Mookerjee.
To Baron Ow-Wachendorf for presenting to the Society the Official German Record of International Policies of the Great European Powers from 1871 to 1914, in 54 volumes.
To Sir B. L. Mitter for presenting to the Society a portrait of the late Mr. Pramatha Nath Bose.
To Sir B. L. Mitter for a donation for the institution of a medal in memory of the late Mr. Pramatha Nath Bose.

10. Office Bearers.

The changes in the Council during the year were as follows :—

Mr. Johan van Manen, Acting Honorary Treasurer, *vice* Dr. S. L. Hora, absent, from 12-3-35 to 29-3-35, and from 25-9-35 to 15-10-35.

Absences other than those mentioned above were :—

Sir Lewis Fermor, absent from 15-1-35 to 1-2-35 ; from 18-4-35 to 5-8-35; and from 17-9-35 to 1-11-35.
Dr. A. M. Heron, absent from 1-1-35 to 1-4-35 ; from 15-5-35 to 15-6-35 ; and from 25-9-35 to 18-10-35.
Mr. L. R. Fawcus, absent from 1-1-35 to 15-4-35 ; from 1-11-35 to 31-12-35.
Mr. Percy Brown, absent from 1-4-35 to 1-7-35.
Lt.-Col. R. N. Chopra, absent from 18-4-35 to 17-7-35.
Sir B. L. Mitter, absent from 11-4-35 to 25-6-35 ; and from 1-9-35 to 1-11-35.
Dr. S. K. Chatterji, absent from 1-5-35 to 1-9-35.
Dr. J. N. Mukherjee, absent from 31-5-35 to 30-9-35.
Sir U. N. Brahmachari, absent from 3-6-35 to 10-7-35.
Mr. C. C. Calder, absent from 1-6-35 to 1-12-35.
R.B. R. Chanda, absent from 5-8-35 to 9-9-35.
Justice Lort-Williams, absent from 15-7-35 to 5-11-35.

11. Committees of Council.

The standing Committees of Council during the year, namely, the Finance, Publication, and Library Committees, met monthly.

The following special sub-committees were appointed during the year :—

Sub-committee to review the general question of the creation of a new form of Associate Membership.

Sub-committee to draft a letter to be considered in circulation, with reference to the proposed cessation of excavations at Mahenjo Daro.

12. Finance Committee.

The Finance Committee continued during the year to meet on dates different from, and a few days prior to, those of the Council Meetings.

A Special Meeting to frame the budget for the next year was held in December.

13. Office.

Staff.—Mr. N. M. Ramachandran, File Clerk, left towards the end of the month of June and Mr. N. Norman was placed in charge of the filing.

Subordinate Staff.—In the subordinate staff the usual minor changes took place, which do not call for comment.

Correspondence.—This year the number of outgoing letters was 1,539 and that of incoming letters 2,601.

Files.—During the year intermittent work was continued with regard to our files, old and new, but not much real progress can be reported.

Stock-room.—Labelling, bundling, and registration of the contents of the stock-room were kept up-to-date during the year for new publications. The stock-books for new accessions and for sales were kept up.

Distribution.—No change was made in the mode of distribution of our periodicals and notices. A better system for the distribution of the free copies of new issues in the *Bibliotheca Indica* should be devised.

Address.—Printed address labels remained in use and the system of constant revision and addition which has been adopted enables us to keep the printed addresses up-to-date, month by month.

Card Register.—The card registers of the Society's membership and of that of the Indian Science Congress were kept up-to-date and checked at the close of the year.

Circulars and Forms.—The number of these printed during the year was 57. About Rs. 694 were expended under this head.

Office Furniture.—One office table and four wall-shelves for the library were acquired, as also two steel skeleton racks for files and current papers.

Office Manual.—This still remains a desideratum.

Arrangement.—No change was made in the present disposition of the rooms except that a room on the ground floor was vacated and placed at the disposal of the National Institute of Sciences of India for its office.

14. Rules and Regulations.

During the year no changes were made in the Rules of the Society except that some minor changes were adopted in the Regulations of all the memorial awards. The Council framed Regulations for the award of the Pramatha Nath Bose Memorial Medal.

15. Indian Science Congress.

Twenty-second Session.—The Twenty-second Annual Meeting of the Indian Science Congress, inaugurating its fourth circuit, was held (for the fourth time) in Calcutta, from January 2nd to January 8th, 1935, under the joint patronage of His Excellency the Right Honourable Earl of Willingdon, G.M.S.I., G.C.M.G., G.B.E., Viceroy and Governor-General of India, and His Excellency the Right Honourable Sir John Anderson, P.C., G.C.B., G.C.I.E., Governor of Bengal.

President.—Dr. J. H. Hutton, C.I.E., M.A., D.Sc., F.A.S.B., I.C.S., Deputy Commissioner, Kohima, Naga Hills, was President of the Congress.

Proceedings.—The Proceedings of the Congress were published during the second week of December. The publication contained 632 pages which was 88 pages of letterpress more than the year before. The number of abstracts sent in for reading to the Congress numbered this year 776 as against 626 last year.

Administration.—During the latter months of the year the usual administrative work for the Congress in connection with the next session (Twenty-third Congress), to be held in Indore, was performed by the Society's office, which also attended to the general administration of the Congress when this was not in session. This year the burden of work thrown on the Society's office was as heavy as usual.

Programme and Abstracts.—As in the previous years the programme of the meeting and the abstracts were sent, as far as was practicable, by post to all Members who had applied for membership before the date of their publication. This year this date was 5th December, two weeks earlier than last year.

Finance.—The Congress finances remained separate from those of the Society.

Secretaries.—The General Secretaries to the Congress were Dr. J. N. Mukherjee and Mr. W. D. West; and the Managing Secretary was Mr. Johan van Manen in his quality as General Secretary of the Asiatic Society of Bengal.

16. Indian Museum.

The Society's representative on the Board of Trustees of the Indian Museum, under the Indian Museum Act, X of 1910, continued to be Rai Sir Upendra Nath Brahmachari Bahadur, Kt., who was reappointed as such for a further period of three years.

17. Kamala Lectureship.

The Society's nominee to serve on the Election Committee of the Kamala Lectureship, administered by the Calcutta University, remained the same, Rai Sir Upendra Nath Brahmachari Bahadur, Kt.

18. National Institute of Sciences of India.

The Society's representatives to serve on the Council of the National Institute of Sciences of India are Lt.-Col. R. N. Chopra and Mr. C. C. Calder.

19. Deputations.

The Society received invitation to send representative to various functions of the undermentioned body :—

19th International Congress of Orientalists at Rome.

The Council invited Dr. S. K. Chatterji to represent the Society.

20. Honours.

Amongst the Honours conferred during the year several were bestowed on members of the Society. The Society's President (Dr. L. L. Fermor), The Hon'ble Mr. Justice M. N. Mukherjee, Maharaja P. C. Bhanj Deo of Mayurbhanj, Mr. A. H. Ghuznavi, and Mr. W. M. Craddock received the honour of Knighthood, whilst Lt.-Col. R. Knowles was made a C.I.E.

21. Congratulations.

Congratulations were sent to several of the above recipients of Civic Honours.

22. Visits.

An appreciable number of distinguished visitors came to the Society during the year. Amongst them were scholars from China, England, Switzerland, and Germany.

Members of the Inter-University Board visited the Society in February.

23. Social Functions.

No social functions were held by the Society during the year.

The President generously enabled the Society to maintain the traditional practice of providing, before the Ordinary Monthly Meetings, light refreshments to the Members and visitors present.

24. Elliott Prize for Scientific Research.

The annual prizes for 1933 and 1934 for research in Chemistry and Physics, respectively, were, in the Annual Meeting of 1935, awarded to Prof. Nirmal Kumar Sen and Dr. D. P. Roy Chowdhury, respectively.

The prize offered for the year 1935 was for Geology and Biology (including Pathology and Physiology). The announcement regarding the prize will be made in the Annual Meeting of 1936.

The prize for next year, 1936, will be for research in Mathematics.

25. Barclay Memorial Medal.

The (biennial) award of the Barclay Memorial Medal for conspicuous contributions to Medical and Biological Science with reference to India, for 1935, will be announced in the Annual Meeting of 1936.

The next award will be announced in the Annual Meeting in February, 1938.

26. Sir William Jones Memorial Medal.

The (biennial) award of the Sir William Jones Memorial Medal for conspicuous researches in Science was announced in the Annual Meeting of 1935. The medal was bestowed on Rai Sir Upendra Nath Brahmachari Bahadur, Kt.

During the year the Council accepted Sir U. N. Brahmachari's suggestion and changed the period of the award into a triennial one. The next (triennial) award will be announced in the Annual Meeting of 1938.

27. Annandale Memorial Medal.

The next (triennial) award, for important contributions to the study of Anthropology in Asia, will be announced in the Annual Meeting of 1937.

28. Joy Gobind Law Memorial Medal.

The next (triennial) award of the Joy Gobind Law Memorial Medal for 1935, for conspicuously important work on Zoology in Asia, will be announced in the Annual Meeting of 1936.

29. Paul Johannes Brühl Memorial Medal.

The (triennial) award of the Paul Johannes Brühl Memorial Medal for important contributions to the study of Asiatic Botany was announced in the Annual Meeting of 1935. The medal was bestowed on Mr. I. H. Burkill.

The next (triennial) award will be announced in the Annual Meeting of 1938.

30. Calcutta Indian Science Congress Prize.

The first award of the prize was announced in the Annual Meeting of 1935 and the award was made to Dr. Meghnad Saha with special reference to his work for the Indian Science Congress.

The next award will be made in connection with the next session of the Congress to be held in Calcutta.

31. Pramatha Nath Bose Memorial Medal.

During the year Sir B. L. Mitter, on behalf of the 'Pramatha Nath Bose Memorial Committee', donated a sum of Rs. 1,800 invested in 3½% Government Paper for the institution of a Pramatha Nath Bose Memorial Medal for conspicuously important contributions to practical or theoretical geology with special reference to Asia, to commemorate the life-work of Mr. Bose, who was a member of the Society for 32 years and a pioneer of geological science and practice in India.

It was decided to gratefully accept the donation. The award is to be triennial. Regulations for the award have been framed and passed by Council.

32. Society's Premises and Property.

A sum of Rs. 2,000 was set aside during the year to be credited to the Building Repairs Fund.

During the year some petty repairs to the Society's building were effected. It is contemplated to undertake thorough repairs during the present year.

The various desiderata and problems existing under the heading Premises and Property have been mentioned in the

Annual Reports of the last few years and have to be kept in mind until realization.

33. Accommodation.

Old problems to be carried over as still needing attention are : the provision of a set of small work-rooms for various uses, and the shelving of the stock-rooms.

During the year a room on the ground floor was vacated and placed at the disposal of the National Institute of Sciences of India for its office.

The available shelving in the Islamic MSS. and printed works room has been completely filled and needs extension. The space available for extension is limited.

34. Artistic and Historical Possessions.

Sir B. L. Mitter presented to the Society a portrait of late Mr. Pramatha Nath Bose. This striking work of art has been gratefully accepted by the Society and has been hung in the Society's main hall.

35. Presentations, Donations, and Legacies.

Except for the presentations to be mentioned under the next heading the Society received a donation from Sir B. L. Mitter for the institution of a medal in memory of the late Mr. Pramatha Nath Bose.

36. Library.

Permanent Library Endowment Fund.—The fund received no further donations during the year. The accumulated interests permitted the purchase of one further paper of Rs. 1,000 (face value, 3½ per cent.) during the year. The total invested capital (face value) increased thereby to Rs. 14,000 and has to accumulate to a total of Rs. 30,000 before income will be available for expenditure.

Accessions.—The accessions to the library during the year, exclusive of about 200 periodicals received through exchange or otherwise, numbered 212 volumes, out of which 71 were purchased and 141 were acquired by presentation.

Binding.—During the year 498 units, including books, pamphlets, and periodicals, were bound at a cost of Rs. 625, out of a total budget allowance of Rs. 650 sanctioned for the purpose.

Purchases.—The allocation for the purchase of books for the year was Rs. 2,000, but actually an amount of Rs. 1,924 was spent. A special grant of Rs. 500 was made for the purchase of early Manuscript Drawings of Indian Fish and other animals. For the new year the grant has been fixed at Rs. 2,500.

Shelving.—A new block of wall-shelves was installed during the year to keep the most important works of reference more easily accessible. Installation of special steel shelving for manuscripts and books in the western section remains to be effected, and provision has also to be made for further steel shelving for the current accessions of periodical literature. Our available shelving space for printed books is also rapidly coming to an end.

Presentations.—The Consul General for Germany very graciously presented the Society with a set of Die Grosse Politik der Europäischen Kabinette, 1871–1914, Herausgegeben von J. Lepsius, A. M. Bartholdy, F. Thimme, 54 Volumes. These volumes now form a part of our library.

37. Finance.

(1) Appendix III contains the usual statements showing our accounts for 1935. No change has been made in the form of their presentation since the previous year.

(2) Two new statements occur in this year :—

(1) Pramatha Nath Bose Memorial Fund Account, and
(2) Fixed Deposit Account, Imperial Bank of India, Calcutta.

(3) One statement, still carried over for final adjustment, is :—

Statement No. 17. International Catalogue of Scientific Literature, London.

(4) The other statements are presented as in the previous year.

(5) The fund accounts again show their invested assets written down to the market values as at the end of the year, and Investment Account No. 25 shows the allocation of invested paper to each fund specifically, whilst both market and face values of the investments are shown in it.

(6) Statement No. 27 shows the Balance Sheet of the Society and the different funds administered by and through it.

(7) The funds belonging to, or administered by, the Society may be classified as follows :—

(*a*) General Fund.
  (i) Permanent Reserve.
  (ii) Working Balance.

(*b*) Specific Funds belonging to the Society.
(*c*) Funds administered by the Society.

At the end of the year, the position of these funds, as compared with their position at the end of 1934, was as follows :—

	Face Value. 31st Dec., 1934. Rs.	Market Value. 31st Dec., 1934. Rs.	Face Value. 31st Dec., 1935. Rs.	Market Value. 31st Dec., 1935. Rs.
1. General Fund ..	2,99,100	2,93,300	2,88,600	2,75,400
(*a*) Permanent Reserve	2,51,100	2,46,700	2,52,000	2,40,900
(*b*) Working Balance ..	48,100	46,600	36,600	34,500
2. Specific Funds belonging to the Society ..	46,600	45,400	59,000	58,500
3. Funds administered by the Society ..	29,500	28,800	39,500	38,500
	3,75,200	3,67,500	3,87,100	3,72,400

(8) During the year Rs. 864 were received through admission fees. As no ordinary member compounded as a life member and no Institutional Member joined during the year, the above amount as well as a sum of Rs. 61-11 cash balance which was brought forward from 1934, under this head aggregating to Rs. 925-11 was transferred to the Permanent Reserve in the usual manner by conversion at the market rates as on 31st December, 1935, of Government 3½% Paper to the Face Value of Rs. 1,000 belonging to the Temporary Reserve of the working balance, whilst a cash advance of Rs. 30-9 is being carried over to the ensuing year, for adjustment under this head.

(9) The Government of Bengal maintained the 20 per cent. cut in all grants made by them to the Society during the year.

The Society received the following grants from the above Government :—

For	Rs.	Statement.
Journals	1,600	1
O.P. Fund No. 1	7,200	2
Sanskrit MSS. Fund	2,800	4
Do.	2,560	4
	14,160	

(10) The Government of Bengal annual grant of Rs. 3,000 in aid of the publication of the Arabic and Persian works of historical interest expired during the year. Government sanction is awaited for the renewal of the grant and it is hoped that same will be received and realized early in the new year.

(11) The income derived from advertising during the year amounted to Rs. 9,600.

(12) The temporary investments of funds in Fixed Deposit and Savings Bank are shown in Statement Nos. 22, 23, and 24.

(13) Statement No. 20 gives an account of the amounts due to and by the Society for membership subscriptions, sales of publications, and contingent charges.

(14) The Government Securities shown in Statement No. 25 are held in safe custody by the Imperial Bank, Park Street Branch. During the year, there was a slight depreciation of the Securities amounting to Rs. 4,074 affecting to that extent the book assets of the Society.

To simplify the accounts, the various investment units in the smaller Fund Accounts were converted into units of one and the same Government loan of the same denomination and amalgamated into single papers for each Fund.

(15) Municipal assessment. For the fourth time in succession the Corporation has enhanced the Assessment on the Society's premises. This time the increase has been so great as to cause serious apprehension. The matter has been placed in the hands of a professional firm of Income Tax Agents to protect the interests of the Society.

(16) The budget estimates for 1935 and the actuals for the year were as follows :—

Estimates.	Receipts.	Expenditure.
	Rs.	Rs.
Ordinary	53,700	53,700
Extraordinary	1,000	1,000
TOTAL ..	54,700	54,700
Actuals.		
Ordinary	56,011	53,529
Extraordinary	864	864
TOTAL ..	56,875	54,393

The ordinary income was about Rs. 2,311 more than estimated.

On the expenditure side also about Rs. 171 was expended less than the estimate.

(17) The year's working shows a decrease in the net balance to the extent of Rs. 1,313 as compared to that of last year, taking into account the depreciation of our investments which amounted to Rs. 4,074.

(18) The budget estimates for probable expenditure have as usual been framed to meet demands under various heads based on vigorous activity in all departments of the Society's work.

The receipts have been conservatively estimated.

BUDGET ESTIMATES FOR 1936.

Ordinary Receipts.

	1935 Estimate.	1935 Actuals.	Budget Estimates for 1936.
	Rs.	Rs.	Rs.
Interest on Investments and Deposits	10,000 800	10,013 1,100	10,000 700
Advertising	9,600	9,600	9,600
Annual Grant	1,600	1,600	1,600
Donation	..	150	..
Miscellaneous	300	374	300
Members' Subscriptions	9,500	10,414	10,000
Publications, Sales, and Subscriptions	5,000	5,460	5,000
Proportionate Share of Funds	7,000	7,000	7,000
Indian Science Congress Contribution	600	1,000	1,000
Rent	9,300	9,300	9,300
TOTAL	53,700	56,011	54,500

Ordinary Expenditure.

	Rs.	Rs.	Rs.
Salaries and Allowances	30,000	31,856	31,500
Commission	300	309	350
Stationery	500	389	500
Fan, Light, and Telephone	800	768	800
Taxes	2,250	2,244	2,250
Postage	1,400	1,349	1,500
Freight	100	..	..
Contingencies	900	720	800
Petty Repairs	100	72	100
Insurance	500	500	500
Menials' Clothing	100	97	200
Office Furniture	450	447	450
Building Repairs	2,000	2,000	2,000
Provident Fund Share	700	686	700
Audit Fee	250	250	250
Books, Library	2,000	1,924	2,500
,, (Special Grant)	..	482	
Binding, Library	650	624	600
Journal and Memoirs	9,900	7,868	6,000
Printing, Circular	800	694	800
Donations	..	200	..
Gratuity	..	50	
Permanent Reserve	..	..	1,500
Replacement of Fans	..	..	1,200
TOTAL	53,700	53,529	54,500

Extraordinary Receipts.

	1935 Estimate.	1935 Actuals.	Budget Estimates for 1936.
By Fees	Rs.	Rs.	Rs.
by Admission Fees	650	864	650
by Compounding Fees ..	300	..	300
by Institutional Membership Registration Fees	50	..	50
TOTAL ..	1,000	864	1,000

Extraordinary Expenditure.

To Permanent Reserve	Rs.	Rs.	Rs.
by Admission Fees	650	864	650
by Compounding Fees ..	300	..	300
by Institutional Membership Registration Fees	50	..	50
TOTAL ..	1,000	864	1,000

38. Publications.

Journal.—Of the *Journal and Proceedings*, Volume XXX, for 1934, one number consisting of 108 pages and 34 plates was issued to close the volume. The title-pages and index for this volume were also published.

Of the *Journal*, Volume I, for 1935, four numbers consisting of 468 pages and 8 plates were issued.

In all 576 pages and 42 plates were published during the year.

Title of Journal.—During the year it was decided to begin a Third Series of the *Journal*. The *Journal* is henceforth to be published in three parts: Journal, Letters; Journal, Science; and Year-Book. The *Year-Book* will contain the material hitherto published in the Proceedings but in an expanded form. For those who wish to bind the parts separately title-pages for the separate parts will be provided. There will also be title-pages for the complete volume of the three parts together.

Memoirs.—Of the *Memoirs* two numbers were published, aggregating 116 pages and 7 plates.

These two numbers constitute the seventh and eighth parts of Col. Sewell's series on Geographic and Oceanographic Research in Indian Waters.

Indian Science Congress.—The *Proceedings* of the 22nd Indian Science Congress, consisting of 632 pages and one table, were published during the year.

Sales.—A sum of Rs. 5,410 was realized, being Rs. 410 above the budget estimate.

Expenditure.—The expenditure on *Journal* and *Memoirs* was about Rs. 7,868.

Advance Proceedings.—Seven numbers were published during the year.

Year-Book.—The *Year-Book* for 1934 was completed in print and will be issued early in the present year.

39. The Baptist Mission Press.

Under the capable superintendence of Mr. P. Knight the Baptist Mission Press continued to act as our chief printers and again gave invaluable assistance and maintained closest co-operation.

40. Agencies.

Our European and Indian Agents remained the same throughout the year. An extension of the list for Asiatic countries is desirable.

41. Exchange of Publications.

During the year, the following applications for exchange with the Society's publications were considered by the Council, with the decisions as noted against them :—

Publications of :	*To be exchanged with :*
Lingnan University, Canton, China	*Journal.*
Book for Exchange Dept., U.S.S.R. Society for cultural relations with foreign countries, Moscow.	*Journal.*
Institut für Völkerkunde der Universität, Wien	*Journal.*
Government Epigraphist for India	*Journal* (Letters).
Sinensia, China	*Journal.*
Szĕ Chuan Research Society	*Journal.*

42. Meetings.

The Ordinary Monthly Meetings of the Society were held regularly every month, with the exception of January and May and the recess month of October. The recorded average attendance was 19 members and 4 visitors. The maximum attendance was in August with 25 members and 11 visitors.

Two meetings of the Medical Section were held during the year.

43. Exhibits.

In the Ordinary Monthly Meetings a number of exhibits were shown and commented upon by the exhibitors. The following may be mentioned :—

S. L. Hora : An interesting Implement for Mud-fishing from Uttarbhag, Lower Bengal.

Sir L. L. Fermor : Tubular Panjal Trap from Kashmir, and an Iron Horse from the Central Provinces.

Baini Prashad : Ethnographical Specimens from the Naga Hills.

V. P. Sondhi : A Coffin and a Skull from a lime-stone cave in the Southern Shan States, Burma.

R. Chanda : A photograph of the tomb of 'Hindoo' Stuart (died in Calcutta, in 1828) in the South Park Street Cemetery, and photographs of four sculptures originally belonging to his collection and now exhibited in the British Museum.

Percy Brown : Portrait of a Lady of the Elizabethan Period, and a miniature painting of a Mughal Prince.

A. L. Coulson : The Perpeti meteorite ; additional stones from the Perpeti meteorite shower ; the Patwar meteorite.

A. M. Heron : An artificial natural Freak from China.

J. van Manen : A Babylonian clay Tablet with cuneiform inscriptions ; and some Tibetan Tankas.

W. D. West : Cinematograph film of Quetta after the earthquake.

44. Communications.

Apart from papers submitted both for reading and subsequent publication, a number of communications, not intended for subsequent publication, were made from time to time in the Ordinary Monthly Meetings.

Amongst such communications made during the year the following may be mentioned :—

Johan van Manen : Recent Advances in the study of Chinese Philosophy ; the word ch'ang in the Tao Te king.

45. General Lectures.

During the year no General Lectures were given.

46. Philology.

Four papers were read during the year to be published later.

Three papers read in the previous years were published during the year.

One paper was read and also published during the year.

47. Natural History : Biology.

One paper read in the previous year was published during the year.

One new paper was read and published during the year.

One paper was read during the year to be published later.

48. Natural History : Physical Science.

One paper read in the previous year was published during the year.

49. Anthropology.

One paper read in the previous year was published during the year.

Six papers were read during the year to be published later.

50. Medical Section.

During the year two meetings of the Medical Section were held, as detailed below :—

November. Speaker : S. L. Hora.
Subject : Recent Indian cases of live Fishes impacted in the food and air passages of men.
Speaker : B. G. Mallaya.
Subject : Surgical aspect of live Fishes impacted in the human food and air passages.

December. Speakers : Lt.-Col. R. N. Chopra and A. C. Roy.
Subject : Some biochemical characteristics of snake venom.

The recorded attendance averaged 6 members and 8 visitors.

51. Bibliotheca Indica.

Works published.—Actually published were four issues, Nos. 1520, 1521, 1523, and 1525, of an aggregate bulk of 11 fascicle units of 96 or 100 pages. The details are given in Appendix II to this report.

Of the above issues one constituted a complete work, namely :—

1. Maitrī Upanisad, text and translation (Second and revised edition).

A separate reprint of the translation alone was also issued.

Indian works continued.—The following works were continued during the year :—

1. Manusmṛti, with the commentary of Medhatithi, Sanskrit.
2. Vaikhānasaśrautasūtram, text, Sanskrit.
3. Saundarānandakāvyam, text, Sanskrit (Second and revised edition).
4. Ātmatattvaviveka, text, Sanskrit.

Islamic works continued.—In the Islamic Series work was continued on two works, namely :—

1. 'Amal-i-Ṣālih, Persian.
2. Rubâ'iyât of Umar-i-Khayyâm, Persian.

52. Catalogue of Sanskrit Manuscripts.

Work on Volume VIII, on Tantra, advanced well. By the end of the year 240 pages were printed off, about 80 pages were in type, and a large instalment of the copy was made press-ready.

53. Arabic and Persian Manuscripts, Search and Catalogue.

The work in this department was steadily pursued.

Binding.—The binding and repairing of previously and newly acquired MSS. was continued and 50 MS. volumes were bound during the year, making a total of 1,108 MSS. bound and repaired since the end of 1924.

Acquisitions.—During the year twenty-nine manuscripts were acquired by purchase. A total amount of Rs. 167 was spent on these new acquisitions.

Reference books.—The collection of Persian and Arabic MSS. catalogues was again added to and its completion continues an object of attention. A number of biographical works of reference were also purchased during the year.

Catalogue.—The work on the Arabic Catalogue was very satisfactory and up to 432 pages were print-ordered during the year.

54. Numismatics.

One Numismatic Supplement (for 1934) was published during the year, aggregating 108 printed pages and 34 plates.

55. Royal Title.

Giving effect to a decision arrived at the year before, a formal application was made through H.E. the Viceroy for the privilege of being permitted to prefix the title 'Royal' before the Society's name.

[APPENDIX I.]

Membership Statistics.

(As calculated for December 31st, for 30 years.)

YEAR.	ORDINARY.								EXTRA-ORDINARY.						FELLOWS	
	PAYING.				NON-PAYING.											
	Resident.	Non-Resident.	Foreign.	Total.	Absent.	Life.	Total.	Total Ordinary Members.	Centenary Honorary.	Associate.	Institutional.	Anniversary Honorary.	Total.	Grand Total Membership.	Honorary.	Ordinary.
1906 ..	173	147	15	335	52	20	72	407	4	12	..	..	16	423	30	..
1907 ..	174	175	20	369	31	20	51	420	4	12	..	..	16	436	28	..
1908 ..	181	193	17	391	38	19	57	448	4	13	..	..	17	465	30	..
1909 ..	183	217	13	413	40	20	60	473	4	14	..	..	18	491	28	..
1910 ..	209	217	16	442	43	23	66	508	4	14	..	..	18	526	27	17
1911 ..	200	225	19	444	53	22	75	519	3	14	..	..	17	536	28	19
1912 ..	203	229	19	451	43	23	66	517	3	13	..	..	16	533	27	24
1913 ..	200	211	19	430	46	23	69	499	3	14	..	..	17	516	27	28
1914 ..	191	187	19	397	50	26	76	473	3	14	..	..	17	490	24	27
1915 ..	171	188	21	380	40	25	65	445	3	15	..	..	18	463	29	31
1916 ..	145	159	18	322	60	25	85	407	3	15	..	..	18	425	26	33
1917 ..	150	144	15	309	45	24	69	378	2	12	..	..	14	392	22	35
1918 ..	153	145	17	315	43	24	67	382	2	10	..	..	12	394	22	39
1919 ..	141	128	15	284	64	25	89	373	2	11	..	..	13	386	18	36
1920 ..	161	134	15	310	32	26	58	368	2	11	..	..	13	381	28	38
1921 ..	160	132	16	308	26	26	51	359	2	12	..	..	14	373	28	40
1922 ..	160	141	16	317	26	26	52	369	2	13	..	..	15	384	30	39
1923 ..	147	120	13	280	30	27	57	337	2	11	..	..	13	350	28	37
1924 ..	209	134	12	355	29	28	57	412	2	12	..	..	14	426	27	37
1925 ..	263	137	12	412	23	27	50	462	2	12	..	..	14	476	26	34
1926 ..	319	162	20	501	23	28	51	552	2	12	..	..	14	566	25	34
1927 ..	328	167	18	513	28	33	61	574	2	13	..	..	15	589	28	38
1928 ..	344	167	23	534	42	46	88	622	1	12	..	..	13	635	28	40
1929 ..	331	181	21	533	36	49	85	618	1	10	2	..	13	631	27	43
1930 ..	291	194	37	522	22	52	74	596	1	8	2	..	11	607	29	47
1931 ..	228	184	29	441	26	52	78	519	1	8	5	..	14	533	29	46
1932 ..	222	126	23	371	27	54	81	452	1	7	5	..	13	465	28	45
1933 ..	194	126	27	347	33	56	89	436	..	7	6	..	13	449	26	49
1934 ..	217	112	30	359	26	57	83	442	..	6	7	12	25	467	26	47
1935 ..	206	107	28	341	28	56	84	425	..	5	7	11	23	448	24	44

[APPENDIX II.]

List of Publications issued by the Asiatic Society of Bengal during 1935.

(a) Bibliotheca Indica :

	Price		
	Rs.	A.	P.
(1) Maitrī Upanisad, English translation (1 unit)	1	0	0
(2) Maitrī Upanisad, text and translation. Fasc. 3 (2 units)	2	0	0
(3) Ṭabaqāt-i-Akbarī, Persian text. Vol. 3 : complete (6 units)	6	0	0
(4) Kas̲h̲f Al-Ḫujub wal Astār 'An Asmā' Al-Kutub wal Asfār, text (2 units)	2	0	0

(b) Journal and Proceedings (New Series) :

Vol. XXX : No. 3 (39 units)	14	10	0
Vol. I (Letters) : No. 1 (12 units)	4	8	0
Vol. I (Letters) : No. 2 (18 ,,)	6	12	0
Vol. I (Science) : No. 1 (6 ,,)	2	4	0
Vol. I (Science) : No. 2 (2 ,,)	0	12	0

Title-pages and Index for Vol. XXX. (Free to Members and Subscribers on application.)

(c) Advance Proceedings :

Vol. II : Nos. 1–7. (Free to Members.)

(d) Memoirs :

Vol. IX : No. 7 (5 units)	2	13	0
Vol. IX : No. 8 (10 ,,)	5	10	0

(e) Miscellaneous :

Proceedings, Twenty-second Indian Science Congress	15	0	0

[APPENDIX III]

Abstract Statement
of
Receipts and Disbursements
of the
Asiatic Society of Bengal
for
the Year 1935

STATEMENT No. 1.

1935. *General*

Income and Expenditure Account

	Rs.	As.	P.	Rs.	As.	P.
To ESTABLISHMENT.						
Salaries and Allowances ..	31,906	12	6			
Commission	308	10	9	32,215	7	3
GENERAL EXPENDITURE.						
Stationery	388	15	0			
Fans and Light	462	15	0			
Telephone	305	5	2			
Taxes	2,244	7	0			
Postage	1,349	5	0			
Contingencies	766	11	7			
Printing Circulars, etc. ..	693	14	0			
Audit Fee	250	0	0			
Petty Repairs	72	13	6			
Insurance	500	0	0			
Menials' Clothing	96	6	0			
Donations	200	0	0			
Furniture	447	0	0	7,777	12	3
LIBRARY AND COLLECTIONS.						
Books	2,405	13	10			
Binding	624	8	0	3,030	5	10
PUBLICATIONS.						
Journal and Proceedings and Memoirs				7,867	11	6
CONTRIBUTION TO FUNDS.						
Provident Fund Contribution for 1935				685	2	0
				51,576	6	10
TRANSFER TO—						
Building Repair Fund Account				2,000	0	0
SUNDRY ADJUSTMENTS.						
Depreciation of Investments re-valued on 31-12-35				4,077	2	0
Bad Debts written-off				943	0	0
BALANCE AS PER BALANCE SHEET				2,75,327	13	5
				3,33,924	6	3

STATEMENT No. 1.

Fund. *1935.*

for the year to 31st December, 1935.

	Rs. As. P.	Rs. As. P.
By BALANCE FROM LAST ACCOUNT ..	....	2,76,691 3 0
CASH RECEIPTS.		
Interest on Investments ..	10,013 6 0	
Interest on Fixed Deposits ..	1,099 14 6	
Advertising	9,600 0 0	
Miscellaneous	374 3 10	
Government grant	1,600 0 0	
Rent	9,300 0 0	
Contributions from Indian Science Congress	1,000 0 0	
Donations	150 0 0	
		33,137 8 4
PERSONAL ACCOUNT.		
Members' Subscriptions ..	10,621 0 0	
Admission Fees	864 0 0	
Miscellaneous	200 10 9	
		11,685 10 9
TRANSFERS FROM FUNDS.		
Proportionate Share in General Expenditure—		
O.P. Fund (1) Account ..	2,500 0 0	
Sanskrit MSS. Fund Account ..	2,000 0 0	
Arabic and Persian MSS. Fund Account	2,500 0 0	
		7,000 0 0
Publication Fund Account ..	....	5,410 0 2
		3,33,924 6 3

STATEMENT No. 2.

1935. *Oriental Publication*

From a monthly grant made by the Government of Bengal for the publi-
(Rs. 500), and for the publication of Sanskrit
(*Less* 20% *from the*

	Rs.	As.	P.	Rs.	As.	P.
To Printing	....			3,242	0	0
Proportionate Share in General Expenditure	....			2,500	0	0
Balance as per Balance Sheet ..	....			1,583	1	11
				7,325	1	11

STATEMENT No. 3.

1935. *Oriental Publication*

From an annual grant made by the Government of Bengal of
Historical
(*Less* 20% *from the*

	Rs.	As.	P.
To Balance from last Account	500	6	4
Printing	3,222	4	3
	3,722	10	7

STATEMENT No. 4.

1935. *Sanskrit Manuscripts Fund*

From an annual grant of Rs. 3,200 made by the Government of Bengal
by the Society; and Rs. 3,600 from the
(*Less* 20% *from the*

	Rs.	As.	P.	Rs.	As.	P.
To Pension	120	0	0			
Cataloguing	2,400	0	0			
Printing	1,151	0	0			
Purchase of MSS.	20	0	0	3,691	0	0
Proportionate Share in General Expenditure	....			2,000	0	0
Balance as per Balance Sheet ..	....			16,443	1	3
				22,134	1	3

STATEMENT No. 2.

Fund, No. 1, in Account with A.S.B. *1935.*

cation of Oriental Works and Works of Instruction in Eastern Languages
Works hitherto unpublished (Rs. 250).
1*st of April,* 1932.)

	Rs. As. P.	Rs. As. P.
By Balance from last Account ..	....	125 1 11
Annual Grant	....	7,200 0 0
		7,325 1 11

STATEMENT No. 3.

Fund, No. 2, in Account with A.S.B. *1935.*

Rs. 3,000 for the publication of Arabic and Persian Works of
Interest.
1*st of April,* 1932.)

	Rs. As. P.
By Balance as per Balance Sheet	3,722 10 7
	3,722 10 7

STATEMENT No. 4.

Account, in Account with A.S.B. *1935.*

for the publication of the Catalogue of Sanskrit Manuscripts acquired
same Government for Research Work.
1*st of April,* 1932.)

	Rs. As. P.	Rs. As. P.
By Balance from last Account ..	....	16,694 1 3
Annual Grant for Research Work, 1935-36	2,880 0 0	
Annual Grant for Cataloguing ..	2,560 0 0	5,440 0 0
		22,134 1 3

STATEMENT No. 5.

1935. *Arabic and Persian Manuscripts*

From an annual grant of Rs. 5,000 made by the Government of India for
by the Society; for the purchase of further Manuscripts,
Manuscripts found in

	Rs. As. P.	Rs. As. P.
To Manuscripts Purchase	433 4 0	
Binding	134 8 0	
Cataloguing	2,400 0 0	2,967 12 0
Proportionate Share in General Expenditure	....	2,500 0 0
Balance as per Balance Sheet ..	....	4,068 13 0
		9,536 9 0

STATEMENT No. 6.

1935. *Barclay Memorial*

From a sum of Rs. 500 odd given in 1896 by the Surgeon
encouragement of Medical

	Rs. As. P.	Rs. As. P.
To Depreciation, Investments revalued on 31-12-35	....	10 8 0
Balance as per Balance Sheet—		
Rs. 700, 3½% G.P.N., 1854-55 ..	669 6 0	
Surplus at date	10 5 8	679 11 8
		690 3 8

STATEMENT No. 7.

1935. *Servants' Pension Fund*

Founded in 1876 as the Piddington Pension Fund

	Rs. As. P.	Rs. As. P.
To Purchase of Investments during the year	....	195 5 5
Depreciation, Investment revalued on 31-12-35	....	46 1 5
Balance as per Balance Sheet—		
Rs. 3,000, 3½% G.P.N., 1854-55 ..	2,868 12 0	
Surplus at date	20 1 6	2,888 13 6
		3,130 4 4

STATEMENT No. 5.

Fund Account, in Account with A.S.B. *1935.*

the cataloguing and binding of Arabic and Persian Manuscripts, acquired and for the preparation of notices of Arabic and Persian various Libraries in India.

		Rs. As. P.	Rs.	As.	P.
By Balance from last Account	..	....	4,536	9	0
Government grant for 1935-36	..	....	5,000	0	0
			9,536	9	0

STATEMENT No. 6.

Fund Account, in Account with A.S.B. *1935.*

General, I.M.S., for the foundation of a medal for the and Biological Science.

		Rs. As. P.	Rs.	As.	P.
By Balance from last Account	..	....	658	1	10
Interest realized for the year	..	....	32	1	10
			690	3	8

STATEMENT No. 7.

Account, in Account with A.S.B. *1935.*

with Rs. 500 odd from the Piddington Fund.

		Rs. As. P.	Rs.	As.	P.
By Balance from last Account	..	....	2,838	13	9
Interest realized for the year	..	....	96	1	2
Investment Account, credited at cost	..	....	195	5	5
			3,130	4	4

STATEMENT No. 8.

1935.

Annandale Memorial Fund

From donations by subscription,

	Rs.	As.	P.	Rs.	As.	P.
To Depreciation, Investments revalued on 31-12-35	....			60	0	0
Balance as per Balance Sheet—						
Rs. 4,000, 3½% G.P.N., 1854-55 ..	3,825	0	0			
Surplus at date	351	5	9			
				4,176	5	9
				4,236	5	9

STATEMENT No. 9.

1935.

Permanent Library Endowment

From gifts received,

	Rs.	As.	P.	Rs.	As.	P.
To Purchase of Investments ..	....			976	11	1
Depreciation, Investments revalued on 31-12-35	....			215	7	1
Balance as per Balance Sheet—						
Rs. 14,000, 3½% G.P.N., 1854-55..	13,387	8	0			
Surplus at date	211	5	8			
				13,598	13	8
				14,790	15	10

STATEMENT No. 10.

1935.

Sir William Jones Memorial

From a sum gifted for the purpose in

	Rs.	As.	P.	Rs.	As.	P.
To Cost of a Medal	....			289	14	0
Depreciation, Investments revalued on 31-12-35	....			45	0	0
Balance as per Balance Sheet—						
Rs. 3,000, 3½% G.P.N., 1854-55 ..	2,868	12	0			
Surplus at date	16	3	0			
				2,884	15	0
				3,219	13	0

STATEMENT No. 11.

1935.

Pramathanath Bose Memorial

From a sum gifted for the purpose in

	Rs.	As.	P.	Rs.	As.	P.
To Balance as per Balance Sheet—						
Rs. 800, 3½% G.P.N., 1842-43 ,, 1,000, ,, ,, 1865 } ..	....			1,721	4	0
				1,721	4	0

STATEMENT No. 8.

Account, in Account with A.S.B. *1935.*
started in 1926.

	Rs. As. P.	Rs.	As.	P.
By Balance from last Account ..	....	4,102	6	7
Interest realized for the year ..	....	133	15	2
		4,236	5	9

STATEMENT No. 9.

Fund Account, in Account with A.S.B. *1935.*
started in 1926.

	Rs. As. P.	Rs.	As.	P.
By Balance from last Account ..	....	13,352	11	3
Interest realized for the year ..	....	461	9	6
Investment Account, credited at Cost	....	976	11	1
		14,790	15	10

STATEMENT No. 10.

Fund Account, in Account with A.S.B. *1935.*
1926, by Dr. U. N. Brahmachari.

	Rs. As. P.	Rs.	As.	P.
By Balance from last Account ..	....	3,115	5	0
Interest realized for the year ..	....	104	8	0
		3,21[illegible]	13	0

STATEMENT No. 11.

Fund Account, in Account with A.S.B. *1935.*
1935.

	Rs. As. P.	Rs.	As.	P.
By Investment Account. Amount received from Sir B. L. Mitter as Donation, 3½% G.P. Notes, per contra	....	1,721	4	0
		1,721	4	0

STATEMENT No. 12.

1935. *Joy Gobind Law Memorial*

From a donation for the purpose in 1929,

	Rs.	As.	P.	Rs.	As.	P.
To Depreciation, Investments revalued on 31-12-35	....			45	0	0
Balance as per Balance Sheet—						
Rs. 3,000, 3½% G.P.N., 1854-55 ..	2,868	12	0			
Surplus at date	264	7	0			
				3,133	3	0
				3,178	3	0

STATEMENT No. 13.

1935. *Building Fund*

From a sum of Rs. 40,000 given by the Government of India proceeds of a portion

	Rs.	As.	P.
To Balance as per Balance Sheet	6,321	9	6
	6,321	9	6

STATEMENT No. 14.

1935. *Calcutta Science Congress Prize*

	Rs.	As.	P.	Rs.	As.	P.
To Depreciation, Investments revalued on 31-12-35	....			45	0	0
Balance as per Balance Sheet—						
Rs. 3,000, 3½% G.P.N., 1854-55 ..	2,868	12	0			
Surplus at date	672	3	7			
				3,540	15	7
				3,585	15	7

STATEMENT No. 15.

1935. *Dr. Brühl Memorial Fund*

From a sum gifted for the purpose in 1929, by

	Rs.	As.	P.	Rs.	As.	P.
To Cost of a Medal	....			9	6	0
Depreciation, Investments revalued on 31-12-35	....			15	0	0
Balance as per Balance Sheet—						
Rs. 1,000, 3½% G.P.N., 1854-55 ..	956	4	0			
Less Deficit at date	10	1	0			
				946	3	0
				970	9	0

STATEMENT No. 12.

Fund Account, in Account with A.S.B. *1935.*

by Dr. Satya Churn Law.

	Rs. As. P.	Rs. As. P.
By Balance from last Account ..	....	3,073 15 0
Interest realized for the year ..	....	104 4 0
		3,178 3 0

STATEMENT No. 13.

Account, in Account with A.S.B. *1935.*

towards the rebuilding of the Society's premises, and from the sale of the Society's land.

	Rs. As. P.
By Balance from last Account	6,321 9 6
	6,321 9 6

STATEMENT No. 14.

Fund Account, in Account with A.S.B. *1935.*

	Rs. As. P.	Rs. As. P.
By Balance from last Account ..	....	3,481 11 7
Interest realized for the year ..	....	104 4 0
		3,585 15 7

STATEMENT No. 15.

Account, in Account with A.S.B. *1935.*

the Brühl Farewell Committee.

	Rs. As. P.	Rs. As. P.
By Balance from last Account ..	....	935 13 0
Interest realized for the year ..	....	34 12 0
		970 9 0

STATEMENT No. 16.

1935 *Building Repair*

	Rs.	As.	P.
To Building Repairs	132	0	0
To Balance as per Balance Sheet	7,868	0	0
	8,000	0	0

STATEMENT No. 17.

1935. *International Catalogue of Scien-*

	Rs.	As.	P.
To Balance as per Balance Sheet	4,374	7	8
	4,374	7	8

STATEMENT No. 18.

1935. *Provident Fund Ac-*

From contributions by the

	Rs.	As.	P.	Rs.	As.	P.
To Amount paid during the year ..	....			291	2	10
Balance as per Balance Sheet—						
Rs. 5,000, 3% G.P.N., 1941 ..	5,190	10	0			
,, 6,000, 5-years Postal Cash Certificates	5,287	8	0			
Savings Bank and Advances ..	5,185	11	6			
				15,663	13	6
				15,955	0	4

STATEMENT No. 19.

1935. *Advances*

	Rs.	As.	P.
To Balance from last Account	1,605	0	0
Payments during the year	275	0	0
	1,880	0	0

STATEMENT No. 16.

Fund Account, in Account with A.S.B. *1935.*

	Rs.	As.	P.
By Balance from last Account	6,000	0	0
Transfer from A.S.B. General Fund	2,000	0	0
	8,000	0	0

STATEMENT No. 17.

tific Literature, in Account with A.S.B. *1935.*

	Rs.	As.	P.
By Balance from last Account	4,374	7	8
	4,374	7	8

STATEMENT No. 18.

count, in Account with A.S.B. *1935.*

Society and its Staff.

	Rs.	As.	P.	Rs.	As.	P.
By Balance from last Account ..	....			14,057	3	10
Staff Contribution for the year ..	701	1	0			
Society's Contribution for the year ..	685	2	0			
Interest realized during the year ..	139	10	6			
				1,525	13	6
Interest realized from Savings Bank, etc.	53	3	0			
Appreciation, Investments revalued on 31-12-35	318	12	0			
				371	15	0
				15,955	0	4

STATEMENT No. 19.

Account, in Account with A.S.B. *1935.*

	Rs.	As.	P.
By Refunds during the year	745	0	0
Balance as per Balance Sheet	1,135	0	0
	1,880	0	0

STATEMENT No. 20.

1935. *Personal*

	Rs.	As.	P.	Rs.	As.	P.
To Balance from last Account ..	....			4,971	1	3
Advances	....			2,762	8	0
Asiatic Society's Subscriptions, etc...	11,685	10	9			
Subscriptions to Journal and Proceedings, and from Book Sales, etc.	5,410	0	2	17,095	10	11
				24,829	4	2

STATEMENT No. 21.

1935. *Publication Fund*

From sale proceeds

	Rs.	As.	P.	Rs.	As.	P.
To Books returned, etc.	....			150	8	0
Publications of the A.S.B. ..	....			5,410	0	2
Balance as per Balance Sheet ..	....			7,236	7	0
				12,796	15	2

STATEMENT No. 20.

Account. *1935.*

	Rs. As. P.	Rs. As. P.
By Cash Receipts during the year ..	....	20,609 10 5
Bad Debts written-off, A.S.B. ..	943 0 0	
Books returned, etc.	150 8 0	
		1,093 8 0
Balance as per Balance Sheet ..	....	3,126 1 9
		24,829 4 2

Outstandings.	Amount due to Society.			Amount due by Society.		
	Rs.	As.	P.	Rs.	As.	P.
Members ..	3,078	15	0	459	13	0
Subscribers .	1	0	0	24	0	0
Bill Collector's Deposit ...	...	...	...	330	0	0
Miscellaneous ...	1,293	1	9	433	2	0
	4,373	0	9	1,246	15	0

STATEMENT No. 21.

Account, in Account with A.S.B. *1935.*

of publications.

	Rs. As. P.	Rs. As. P.
By Balance from last Account ..	....	7,197 15 9
Cash Sales of Publications ..	....	188 15 3
Credit Sales of Publications, etc. ..	3,946 0 2	
Subscriptions to Journal and Proceedings, etc.	1,464 0 0	
		5,410 0 2
		12,796 15 2

STATEMENT No. 22.

1935. *(1) Deposit Account*

	Rs.	As.	P.	Rs.	As.	P.
To Balance from last Account ..	....			2,291	13	10
Deposit of Contributions during the year	1,386	3	0			
Deposit of Advances returned ..	746	0	0			
Deposit of Interest realized during the year	140	4	6			
				2,272	7	6
Interest realized for the year 1935 ..	....			53	3	0
				4,617	8	4

STATEMENT No. 23.

1935. *(2) Deposit Account*

	Rs.	As.	P.
To Balance from last Account	30,000	0	0
Deposit during the year	45,100	0	0
	75,100	0	0

STATEMENT No. 24.

1935. *(3) Deposit Account*

	Rs.	As.	P.
To Deposit during the year	15,000	0	0
	15,000	0	0

STATEMENT No. 22.

(Savings Bank Deposit with Imperial Bank of India). *1935.*

	Rs. As. P.	Rs. As. P.
By Withdrawal for Staff Advances, etc.	....	566 2 10
Balance as per Balance Sheet ..	....	4,051 5 6
		4,617 8 4

STATEMENT No. 23.

(Fixed Deposit with Central Bank of India). *1935.*

	Rs. As. P.
By Withdrawals during the year	50,100 0 0
Balance as per Balance Sheet	25,000 0 0
	75,100 0 0

STATEMENT No. 24.

(Fixed Deposit with Imperial Bank of India). *1935.*

	Rs. As. P.
By Balance as per Balance Sheet	15,000 0 0
	15,000 0 0

STATEMENT No. 25.

1935. *(4) Investment*

	Rs.	As.	P.	Rs.	As.	P.
To Balance from last Account	....			3,17,399	4	0
Purchases during the year:						
Servants' Pension Fund	195	5	5			
Permanent Library Endowment Fund	976	11	1	1,172	0	6
Pramathanath Bose Memorial Fund ..	....			1,721	4	0
				3,20,292	8	6

Face Value Rs.	FUNDS.	Rate @ Rs. %	31st December, 1935, Valuation. Rs.	A.	P.	31st December, 1934, Valuation including * purchases during the year. Rs.	A.	P.	Depreciation or *Appreciation. Rs.	A.	P.
	ASIATIC SOCIETY OF BENGAL.										
	PERMANENT RESERVE.										
16,700	3½% G.P. Notes, 1842-43 ...										
1,53,700	3½% G.P. Notes, 1854-55 ...										
44,300	3½% G.P. Notes, 1865										
6,000	3½% G.P. Notes. 1879 ...										
30,800	3½% G.P. Notes, 1900-01										
2,51,500		95/10/-	2,40,496	14	0						
500	3% G.P. Notes, 1896-97	86/4/-	431	4	0						
	TEMPORARY RESERVE.										
20,200	3½% G.P. Notes, 1900-01 ...	95/10/-	19,316	4	0						
11,400	4½% Loan, 1955–60	116/10/-	13,295	4	0						
			2,73,539	10	0	2,77,616	12	0	4,077	2	0
	BARCLAY MEMORIAL FUND.										
700	3½% G.P. Notes, 1854-55 ...	95/10/-	669	6	0	679	14	0	10	8	0
	SERVANTS' PENSION FUND.										
3,000	3½% G.P. Notes, 1854-55 ...	95/10/-	2,868	12	0	2,719 *195	8 5	0 5	46	1	5
	ANNANDALE MEMORIAL FUND.										
4,000	3½% G.P. Notes, 1854-55 ..	95/10/-	3,825	0	0	3,885	0	0	60	0	0
	PERMANENT LIBRARY ENDOWMENT FUND.										
14,000	3½% G.P. Notes, 1854-55 ..	95/10/-	13,387	8	0	12,626 *976	4 11	0 1	215	7	1
	SIR WILLIAM JONES MEMORIAL FUND.										
3,000	3½% G.P. Notes, 1854-55 ...	95/10/-	2,868	12	0	2,913	12	0	45	0	0
	PRAMATHANATH BOSE MEMORIAL FUND.										
800	3½% G.P. Notes, 1842-43 ..	95/10/-	1,721	4	0	1,721	4	0	...	...	..
1,000	3½% G.P. Notes, 1865 ...										
	JOY GOBIND LAW MEMORIAL FUND.										
3,000	3½% G.P. Notes, 1854-55 ...	95/10/-	2,868	12	0	2.913	12	0	45	0	0
	CALCUTTA SCIENCE CONGRESS PRIZE FUND.										
3,000	3½% G.P. Notes, 1854-55 ...	95/10/-	2,868	12	0	2,913	12	0	45	0	0
	DR. BRÜHL MEMORIAL FUND.										
1,000	3½% G.P. Notes, 1854-55 ...	95/10/-	956	4	0	971	4	0	15	0	0
3,17,100	Carried over ...	......	3,05,574	0	0	3,10,133	2	6	4,559	2	6

STATEMENT No. 25.

Account *1935.*

	Rs.	As.	P.	Rs.	As.	P.
By Depreciation, Investments revalued on 31st December, 1935	....			4,240	6	6
Balance as per Balance Sheet ..	....			3,16,052	2	0
				3,20,292	8	6

Face Value Rs.	FUNDS.	Rate @ Rs. %	31st December, 1935, Valuation.			31st December, 1934, Valuation including *purchases during the year.			Depreciation or *Appreciation.		
			Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
3,17,100	Brought forward ...	... ..	3,05,574	0	0	3,10,133	2	6	4,559	2	6
	PROVIDENT FUND.										
5,000	3% Loan, 1941 ..	103/13/-	5,190	10	0	5,059	6	0	...	...	...
6,000	Post Office 5-year Cash Certificates	88/2/-	5,287	8	0	5,100	0	0	*318	12	0
			10,478	2	0	10,159	6	0			
3,28,100		......	3,16,052	2	0	3,20,292	8	6	4,240	6	6

STATEMENT No. 26.

1935.

Cash

For the year ended 31st

To	Rs.	As.	P.	Rs.	As.	P.
Balance from last Account	....			10,789	8	6
General Fund Account	33,137	8	4			
Oriental Publication Fund No. 1 Account	7,200	0	0			
Sanskrit Manuscripts Fund Account ..	5,440	0	0			
Arabic and Persian Manuscripts Fund Account	5,000	0	0			
Barclay Memorial Fund Account ..	32	1	10			
Servants' Pension Fund Account ..	96	1	2			
Annandale Memorial Fund Account ..	133	15	2			
Permanent Library Endowment Fund Account	461	9	6			
Sir William Jones Memorial Fund Account	104	8	0			
Joy Gobind Law Memorial Fund Account	104	4	0			
Calcutta Science Congress Prize Fund Account	104	4	0			
Dr. Brühl Memorial Fund Account ..	34	12	0			
Provident Fund Account	1,525	13	6			
Advances Account	745	0	0			
Personal Account	20,609	10	5			
Publication Fund Account	188	15	3			
Savings Bank Deposit Account, Imperial Bank of India, Calcutta	566	2	10			
Fixed Deposit Account, Central Bank of India, Calcutta	50,100	0	0	1,25,584	10	0
				1,36,374	2	6

STATEMENT No. 26.

Account. *1935.*

December, 1935.

By	Rs.	As.	P.	Rs.	As.	P.
General Fund Account	51,576	6	10			
Oriental Publication Fund No. 1 Account	3,242	0	0			
Oriental Publication Fund No. 2 Account	3,222	4	3			
Sanskrit Manuscripts Fund Account ..	3,691	0	0			
Arabic and Persian Manuscripts Fund Account	2,967	12	0			
Servants' Pension Fund Account ..	195	5	5			
Permanent Library Endowment Fund Account	976	11	1			
Sir William Jones Memorial Fund Account	289	14	0			
Dr. Brühl Memorial Fund Account ..	9	6	0			
Building Repair Fund Account ..	132	0	0			
Provident Fund Account	291	2	10			
Advances Account	275	0	0			
Personal Account	2,762	8	0			
Savings Bank Deposit Account, Imperial Bank of India, Calcutta	2,272	7	6			
Fixed Deposit Account, Central Bank of India, Calcutta	45,100	0	0			
Fixed Deposit Account, Imperial Bank of India, Calcutta.	15,000	0	0			
				1,32,003	13	11
Balance as per Balance sheet—						
In hand	92	7	3			
With the Imperial Bank of India on Current Account	4,277	13	4			
				4,370	4	7
				1,36,374	2	6

STATEMENT No. 27.

1935. *Balance*

As at 31st

LIABILITIES.

	Rs.	As.	P.	Rs.	As.	P.
General Fund Account	2,75,327	13	5			
Oriental Publication Fund No. 1 Account	1,583	1	11			
Sanskrit Manuscripts Fund Account ..	16,443	1	3			
Arabic and Persian Manuscripts Fund Account	4,068	13	0			
Barclay Memorial Fund Account ..	679	11	8			
Servants' Pension Fund Account ..	2,888	13	6			
Annandale Memorial Fund Account ..	4,176	5	9			
Permanent Library Endowment Fund Account	13,598	13	8			
Sir William Jones Memorial Fund Account	2,884	15	0			
Pramathanath Bose Memorial Fund Account	1,721	4	0			
Joy Gobind Law Memorial Fund Account	3,133	3	0			
Building Fund Account	6,321	9	6			
Calcutta Science Congress Prize Fund Account	3,540	15	7			
Dr. Brühl Memorial Fund Account ..	946	3	0			
Building Repair Fund Account ..	7,868	0	0			
International Catalogue of Scientific Literature Account	4,374	7	8			
Provident Fund Account	15,663	13	6			
Publication Fund Account	7,236	7	0			
				3,72,457	8	5
				3,72,457	8	5

We have examined the above Balance Sheet and the appended detailed accounts with the Books and Vouchers presented to us and certify that they are in accordance therewith, and, in our opinion, set forth correctly the position of the Society as at 31st December, 1935.

PRICE, WATERHOUSE, PEAT & Co.,

Auditors,
Chartered Accountants,
Registered Accountants.

Calcutta,
31st January, 1936.

STATEMENT No. 27.

Sheet. *1935.*

December, 1935.

ASSETS.

	Rs. As. P.	Rs. As. P.
Oriental Publication Fund No. 2 Account	3,722 10 7	
Advances Account	1,135 0 0	
Personal Account	3,126 1 9	
		7,983 12 4
Deposits :—		
Savings Bank Deposit Account, Imperial Bank of India ..	4,051 5 6	
Fixed Deposit Account, Central Bank of India, Ltd.	25,000 0 0	
Fixed Deposit Account, Imperial Bank of India	15,000 0 0	
		44,051 5 6
Investment Account	....	3,16,052 2 0
Cash Account :—		
In hand	92 7 3	
With the Imperial Bank of India, on Current Account	4,277 13 4	
		4,370 4 7
		3,72,457 8 5

S. L. Hora,
Honorary Treasurer.

[APPENDIX IV.]

Abstract Proceedings Council, 1935.

(Rule 48 f.)

ACCOMMODATION—

Office accommodation to the National Institute of Science. The General Secretary to see whether the north front room on the ground floor can be conveniently vacated and placed at the disposal of the Institute. The Secretary and Dr. Hora to decide final arrangement.
No. 5. 28-1-35.

Report use of the Society's Hall for a Council Meeting of the National Institute of Sciences of India. Action approved.
No. 1. 29-4-35.

Request for the use of the Society's hall by the Mining and Geological Institute of India. Action approved.
No. 3. 29-7-35.

Request for the use of the Society's Hall by the Mining and Geological Institute of India. Grant : General Secretary's letter approved.
No. 1. 25-11-35.

ANNUAL MEETING—

Annual Meeting. Arrangements approved.
No. 7. 28-1-35.

Annual report. Approved.
No. 8. 28-1-35.

ASSOCIATE MEMBERS—

Report death of Fr. H. Hosten, S.J. Announce. General Secretary to prepare an obituary notice.
No. 2. 29-4-35.

BUILDING—

Recommendation Finance Committee No. 3(*b*) of 22-2-35.

Estimates periodical repairs to the building. The General Secretary and Honorary Treasurer to consider and make recommendations to Special Finance Committee before next following Council. Accepted by Council.
No. 6. 25-2-35.

COMMITTEES—

Constitution of Standing Committees of the Society for 1935-36. The Standing Committees to be constituted as below :—

(*a*) *Finance Committee :*

President } *Ex-officio.*
Treasurer }
General Secretary }
Dr. A. M. Heron.
Dr. J. N. Mukherjee.

(*b*) *Library Committee :*

President
Treasurer
General Secretary
Philological Secretary
Jt. Philological Secretary
Biological Secretary
Physical Science Secretary
Anthropological Secretary
Medical Secretary
Library Secretary

Ex-officio.

(*c*) *Publication Committee :*

President
Treasurer
General Secretary
Philological Secretary
Jt. Philological Secretary
Biological Secretary
Physical Science Secretary
Anthropological Secretary
Medical Secretary
Library Secretary

Ex-officio.

No. 4. 25-2-35.

Fixing dates for the next Council and Committee Meetings. The Council and Committee Meetings to be held on Monday, the 16th December, 1935.
No. 10 25-11-35.

CONDOLENCES—

Notice of decease of M. L. Finot, first Director of the French School of the Far East. Express the Society's condolences.
No. 1. 24-6-35.

Report receipt of news of death of (*a*) two Fellows Col. H. W. Acton and Dr. P. J. Bruhl, and (*b*) three former members of the Society, Sir John Thompson, Sir D. P. Sarvadhikary, and Dr. G. N. Mukhopadhyaya. Record and Announce.
No. 16. 30-9-35.

CONGRATULATIONS AND THANKS—

Outgoing Council. The Chairman expressed the Council's thanks to the outgoing members of Council for their services rendered to the Society and for their valued support given to the Council.

Resolved that the Council's thanks be conveyed to the outgoing members, and a special vote of thanks to Sir R. N. Mookerjee.
No. 15. 28-1-35.

Donation from Sir B. L. Mitter for the institution of a medal in memory of the late Mr. P. N. Bose. Accept with thanks. The General Secretary to put up draft of rules.
No. 3. 25-2-35.

Report presentation by Baron Ow Wachendorf of the Official German Record of International Policies of the Great European Powers from 1871–1914 in 40 volumes. Record with thanks to donor.
No. 1. 29-7-35.

Presentation by Sir B. L. Mitter of a portrait of the late Mr. P. N. Bose. Accept with thanks to donor.
No. 1. 26-8-35.

COUNCIL—

Outgoing Council. The Chairman expressed the Council's thanks to the outgoing members of Council for their services rendered to the Society and for their valued support given to the Council.

Resolved that the Council's thanks be conveyed to the outgoing members, and a special vote of thanks to Sir R. N. Mookerjee.
No. 15. 28-1-35.

Acceptance of seats on the Council by Council members. Record.
No. 1. 25-2-35.

Recommendations of the Finance Committee of 22-2-35. Accept. Also resolved that the General Secretary (Mr. Johan van Manen) be authorised to officiate as Honorary Treasurer to the Society during the absence of the Honorary Treasurer, Dr. S. L. Hora, from 11th March, 1935, until notification of the latter's return to Calcutta and resumption of office.
No. 6. 25-2-35.

Absence of Philological Secretary from Calcutta. Record. Request Dr. Chatterji to represent the Society at the 19th International Congress of Orientalists at Rome.
No. 1. 27-5-35.

Absence of Physical Science Secretary from Calcutta. Record.
No. 2. 27-5-35.

Absence of Honorary Treasurer from Calcutta. Resolved. That the General Secretary (Mr. Johan van Manen) be authorised to officiate as Honorary Treasurer to the Society during the absence of the Honorary Treasurer, Dr. S. L. Hora, from Thursday, the 26th September, 1935, until notification of the latter's return to Calcutta and resumption of office.
No. 5. 30-9-35.

Fixing dates for the next Council and Committee Meetings. The Council and Committee Meetings to be held on Monday, the 16th December, 1935.
No. 10. 25-11-35.

Informal consideration of the composition of Council for 1936-37. After discussion, the following list of candidates for nomination to next year's Council was placed before the meeting for consideration.

President	H. E. Sir John Anderson.
Vice-President	Sir David Ezra.
,, ...	Sir U. N. Brahmachari.
,, ...	Lt.-Col. R. Knowles.
,, ...	Sir B. L. Mitter.
General Secretary	Johan van Manen.
Treasurer	Dr. S. L. Hora.
Phil. Secretary	Dr. S. K. Chatterji.
Jt. Phil. Secretary	Dr. M. Hidayat Hosain.
Nat. Hist. Secretary (Biology) ..	Dr. Baini Prashad.
,, ,, ,, (Phys. Sci.)	Dr. J. N. Mukherjee.
Anthropological Secretary ..	R. B. R. Chanda.

Medical Secretary ..	.. Lt.-Col. R. N. Chopra.
Library Secretary ..	.. Dr. A. M. Heron.
Member of Council	.. Mr. Percy Brown.
,, ,, ..	.. Mr. C. C. Calder.
,, ,, ..	.. Mr. N. G. Majumdar.
,, ,, ..	.. Mr. N. Barwell.
,, ,, ..	.. Mr. K. C. Mahindra.
,, ,, ..	.. Mr. M. Mahfuzul Haq.

Resolved that the General Secretary do print and circulate to the members of Council the list of the members of the Council as at present constituted together with the new list placed before the meeting and provided with a blank column for additional names and these lists be returned to the General Secretary within a week of date of issue; and that a list be compiled of the candidates finally proposed and be placed before the next Council Meeting to be voted upon.
No. 11. 25-11-35.

Council nomination, 1936-37. The General Secretary reported that all Council members had returned the list of candidates circulated, duly signed and unanimously approved without any alternate suggestion. Resolved that the list of names placed before the Council in November Council Meeting be declared that of the Council candidates for election to next year's Council, and that it be ordered to be issued to the Resident Members, as prescribed in Rule 44.
No. 12. 16-12-35.

DONATION—

Appeal from Sir C. C. Ghose Memorial Committee. A donation of Rs. 50 be given to the fund.
No. 13. 28-1-35.

Letter from the President suggesting to give a donation of Rs. 150 to the Quetta Earthquake Relief Fund. Send Rs. 150. Invite contributions from Council Members and Ordinary Members.
No. 2. 24-6-35.

Recommendation. Finance Committee No. 2 of 21-6-35. Suggestion from the President to donate a sum of Rs. 150 to the Quetta Earthquake Relief Fund from the Society. Recommended that Rs. 150 be paid at once and that subscriptions be invited from Council and members to maximum individual contribution of Rs. 10. Accepted by Council.
No. 4. 24-6-35.

Report response to the appeal for donation for the Quetta Earthquake Relief Fund. Record.
No. 2. 29-7-35.

EXCHANGE OF PUBLICATIONS—

Request for exchange of publications from Lingnan Science Journal, Lingnan University, Canton, China. Exchange Journal. Attempt to be made to obtain complete set by exchange.
No. 12. 29-7-35.

Request for exchange of publication from the Book Exchange Department, U.S.S.R. Society for cultural relations with Foreign Countries, Moscow. Grant.
No. 13. 29-7-35.

Request for exchange of publication from Institut für Volkerkunde der Universitat, Wien, Austria. Exchange Journal.
No. 14. 29-7-35.

Application for exchange of publications from the Government Epigraphist for India Exchange Journal, Letters.
No. 1. 28-10-35.

Exchange of publications. Offer exchange with Journal Sinensia and Journal of the Sze Chuan Research Society.
No. 10. 28-10-35.

FELLOWS—

Report receipt of news of death of (*a*) two Fellows Col. H. W. Acton and Dr. P. J. Bruhl, and (*b*) three former members of the Society, Sir John Thompson, Sir D. P. Sarvadhikary and Dr. G. N. Mukhapadhyaya. Record and Announce.
No. 16. 30-9-35.

FINANCE—

Recommendation Finance Committee No. 3 of 25-1-35. Application from Duftris Ebrahim and Nawab Jan to be allowed to contribute to the Society's Provident Fund. Grant to Ebrahim; hold over the case of Nawab Jan. Accepted by Council.
No. 9. 28-1-35.

Appeal from Sir C. C. Ghose Memorial Committee. A donation of Rs. 50 to be given to the fund.
No. 13. 28-1-35.

Letter from the Government of Bengal regarding remuneration for work in connection with the preparation of the Descriptive Catalogue of Sanskrit MSS. Accept recommendation Finance Committee.
No. 2. 25-2-35.

Recommendation Finance Committee No. 3(*a*) of 22-2-35. Auditors' report for the year 1934. Record. The Honorary Treasurer to consider and report on necessary action. Accepted by Council.
No. 6. 25-2-35.

Recommendation Finance Committee No. 3(*b*) of 22-2-35. Estimates periodical repairs to the building. The General Secretary and Honorary Treasurer to consider and make recommendations to Special Finance Committee before next following Council. Accepted by Council.
No. 6. 25-2-35.

Recommendation Finance Committee No. 3(*c*) of 22-2-35. Remuneration to Mr. C. Chakravarti, Sanskrit MSS. Catalogue. Accept proposal if Council agrees; Mr. Chakravarti is required to submit a monthly progress statement of work. Accepted by Council.
No. 6. 25-2-35.

Recommendation Finance Committee No. 3(*d*) of 22-2-35. Withdrawal resignation, Cashier. Accept. Accepted by Council.
No. 6. 25-2-35.

Recommendations of the Finance Committee of 22-2-35. Accept. Also resolved that the General Secretary (Mr. Johan van Manen) be authorised to officiate as Honorary Treasurer to the Society during the absence of the Honorary Treasurer, Dr. S. L. Hora, from 11th March, 1935, until notification of the latter's return to Calcutta and resumption of office. 25-2-35.
No. 6.

Recommendation Finance Committee No. 3(*a*) of 22-3-35. Report by the Honorary Treasurer regarding outstanding amounts due to Society on account of sale of books referred to by the Auditors in their last report, etc. Action approved. Treasurer to take such further action as he thinks fit. Accepted by Council. 25-3-35.
No. 3.

Finance Committee No. 7 of 26-4-35. Additional Investments: Invest Rs. 1,000—Face Value 3½% paper for Permanent Library Fund. Invest Rs. 200 Face Value 3½% paper for Servants' Pension Fund. Recommended that the various Permanent Investments be simplified by amalgamation of small investments in single or rounded amounts if this can be done with little expense and without administrative difficulty. Accepted by Council. 29-4-35.
No. 6.

Finance Committee No. 8 of 26-4-35. Simplification investments. Recommended that the various Permanent investments be simplified by amalgamation of small investments in single or rounded amounts if this can be done with little expense and without administrative difficulty. Accepted by Council. 29-4-35.
No. 6.

Recommendation Finance Committee No. 9 of 26-4-35. Staff Salary increments. That the increments be given with effect from the beginning of the current year. Council order: Accept, with addition of Rs. 5 increase to Pandit B. B. Mukherjee with effect from 1st January, 1935. 29-4-35.
No. 6.

Recommendations of the Finance Committee of 26-4-35. Accept, with addition of Rs. 5 increase to Pt. B. B. Mukherjee with effect from 1st January, 1935. 29-4-35.
No. 6.

Recommendation Finance Committee No. 3 of 24-5-35. Letter from the Imperial Bank of India, Park Street Branch, regarding interest allowed on Fixed Deposits. Record. The Honorary Treasurer kindly to consider at the occasion of the next temporary investment falling due, investment in: (*a*) Treasury Bills for different periods, (*b*) Fixed Deposit, Imperial Bank, and to make recommendations. Accepted by Council. 27-5-35.
No. 4.

Finance Committee No. 4 of 24-5-35. Conversion Investment Fund Accounts. Except for Permanent and Temporary reserve funds consolidate all holdings into single papers of 3½% Government Loan of 1854-55, exchanging where necessary other scrip held into the scrip indicated. Accepted by Council. 27-5-35.
No. 4.

यह पुस्तक वितरित न की जाय
NOT TO BE ISSUED

Recommendation Finance Committee No. 5 of 24-5-35. Increment of salary to menial staff. Increment to menials recommended according to the Honorary Treasurer's proposals. Accepted by Council.
No. 4. 27-5-35.

Recommendation Finance Committee No. 6 of 24-5-35. Application from Abdul Ghani, Library Duftri. The Honorary Treasurer to look into the matter and to make recommendation. Accepted by Council.
No. 4. 27-5-35.

Letter from the President suggesting to give a donation of Rs. 150 to the Quetta Earthquake Relief Fund. Send Rs. 150. Invite contributions from Council Members and Ordinary Members.
No. 2. 24-6-35.

Recommendation Finance Committee No. 2 of 21-6-35. Suggestion from the President to donate a sum of Rs. 150 to the Quetta Earthquake Relief Fund from the Society. Recommended that Rs. 150 be paid at once and that subscriptions be invited from Council and members to maximum individual contribution of Rs. 10. Accepted by Council.
No. 4. 24-6-35.

Removal of 10 names under Rule 38. Apply rules. Announce as removed from the member list under Rule 38.
No. 8. 24-6-35.

Report response to the appeal for donation for the Quetta Earthquake Relief Fund. Record.
No. 2. 29-7-35.

List of 14 members who are in arrears with subscriptions. Apply Rules.
No. 11. 29-7-35.

Absence of Honorary Treasurer from Calcutta. Resolved: That the General Secretary (Mr. Johan van Manen) be authorised to officiate as Honorary Treasurer to the Society during the absence of the Honorary Treasurer, Dr. S. L. Hora, from Thursday, the 26th September, 1935, until notification of the latter's return to Calcutta and resumption of office.
No. 5. 30-9-35.

Application from Shah Moinuddin Ahmad. Grant remission for two months without force of precedent.
No. 7. 30-9-35.

Application from Duftry Chunnu. Restitute pay list deduction last month on compassionate allowance to applicant and also to other members of staff whose pay has been cut under similar circumstances.
No. 8. 30-9-35.

Application from Typist, N. Gupta. Leave granted for two weeks on half pay.
No. 9. 30-9-35.

Recommendation Finance Committee No. 9 of 24-9-35. Application from the Staff for Jubilee Bonus. Refer to Jubilee Committee. Accepted by Council.
No. 11. 30-9-35.

यह पुस्तक वितरित न की जाय
NOT TO BE ISSUED

Finance Committee No. 10 of 24-9-35. Letter from Dr. Hora to Dr. Heron suggesting the purchase of 3 volumes of drawings on Indian Zoology. Recommendation: Council may be pleased to make a supplementary budget grant of Rs. 500 for the purchase, if possible, to be met wholly or partly by reappropriation from various budget heads at the end of the year. Accepted by Council.
No. 11. 30-9-35.

Recommendations of the Finance Committee of 24-9-35. Accept with the modifications dealt with above.
No. 11. 30-9-35.

Recommendation Finance Committee No. 2(*b*) of 25-10-35. Statement of Receipts and Expenditure of the Society for the nine months ending 30th September, 1935. That an additional budget grant of Rs. 700 be made to meet excess of expenditure under salaries, to be found from anticipated surplus income. Accepted by Council.
No. 4. 28-10-35.

Recommendations of the Finance Committee of 25-10-35. Accept, including the recommendations regarding an additional Budget grant.

Also resolved that the Honorary Treasurer be hereby authorised to transfer all temporary reserve funds to the Imperial Bank on fixed deposit when and as seems practical to him. For the intervening period moneys available may be deposited with the Central Bank on fixed deposit.

Also resolved that the Honorary Treasurer be hereby authorised to open a current account of Rs. 1,000 with an approved exchange bank as a permanent advance to obtain cheques for remittances to foreign countries and to be replenished from time to time when needed.
No. 4. 28-10-35.

Removal of names under Rule 40. Apply rules.
No. 8. 28-10-35.

Authority to make payments of bills during the end of the year. Resolved that the Hon. Treasurer and General Secretary be authorised to sign for and make payments of outstandings exceeding Rs. 100 during the period between the last Council Meeting of the year and the close of the year.
No. 12. 25-11-35.

Notice regarding the re-assessment from the Calcutta Corporation. Action approved.
No. 1. 16-12-35.

Recommendations of the Special Finance Committee of 13-12-35. Budget estimates for 1936. Accept. All fans to be replaced subject to funds being available.
No. 5. 16-12-35.

FURNITURE—

Recommendations of the Special Finance Committee of 13-12-35. Budget estimates for 1936. Accept. All fans to be replaced subject to funds being available.
No. 5. 16-12-35.

INDIAN MUSEUM—

Representation of the Society on the Board of Trustees of the Indian Museum. Sir U. N. Brahmachari to be the Society's representative.
No. 2. 25-11-35.

INDIAN SCIENCE CONGRESS—

Recommendation of the Indian Science Congress Calcutta Prize Advisory Board. Accept the Board's recommendation, Dr. M. N. Saha.
No. 4. 28-1-35.

JUBILEE CELEBRATIONS—

Anniversary Commemoration Volume. The General Secretary reported progress of preparation. Record. Division of editorial labours to be ascertained from previous records, and materials to be distributed accordingly to the members concerned.
No. 1 (special) 14-3-35.

KAMALA LECTURESHIP—

Representation on the Selection Committee, Kamala Lectureship, Calcutta University. Sir U. N. Brahmachari to be the Society's representative.
No. 1. 28-1-35.

LEASE—

Letter from the Standard Oil Co. of New York, Calcutta, requesting to assign the lease to the revised name of the Company as 'Standard Vacuum Oil Co.', Calcutta. That the General Secretary be empowered to make the required assignment on behalf of the Council.
No. 11. 29-4-35.

LECTURES—

Proposed General Lecture by Mr. Sharma. N. G. Majumdar kindly to advise and on his recommendation an opportunity to be given to Mr. Sharma to expose his views to the public in the Society's hall.
No. 12. 29-4-35.

Public Lectures, winter session, 1935-36. Council members are invited to make offers of lecture to the General Secretary. The General Secretary to report in the next meeting.
No. 5. 29-7-35.

LIBRARY—

Application for the loan of Dr. E. Herzfeld's 'Paikuli' from Mr. M. B. Darbari. Grant loan.
No. 1. 30-9-35.

Letter from Dr. S. L. Hora to Dr. A. M. Heron suggesting the purchase of a set of watercolour drawings of Indian plants and fishes. Ask to send on approval; safe return guaranteed; to be purchased if approved upon examination.
No. 4. 30-9-35.

Finance Committee No. 10 of 24-9-35. Letter from Dr. Hora to Dr. Heron suggesting the purchase of 3 volumes of drawings on Indian Zoology. Recommendation: Council may be pleased to make a supplementary budget grant of Rs. 500 for the purchase, if possible, to be met wholly or partly by reappropriation from various budget heads at the end of the year. Accepted by Council.
No. 11. 30-9-35.

LOAN OF MSS.—

Report on manuscripts lent out during the month. Record. Recall manuscript of Sahasrika Prajna paramita within 10 days from date. Further resolved : that in future rules shall be strictly applied.
No. 1. 25-3-35.

Application for loan of Manuscripts from (1) Dr. P. C. Bagchi and (2) Dr. R. C. Majumdar : (1) Lend Buddhakalpa Tantra manuscript to Dr. Bagchi on bond of Rs. 200 ; (2) The Manuscript 'Habib-us-Sujar' not to be loaned out ; to be kept in special custody.
No. 3. 29-4-35.

Application for loan of manuscripts from the Punjab University Library. Record.
No. 4. 29-7-35.

Report on manuscripts lent out during the month and new loan applications. Record. Issue after observation of usual formalities.
No. 3. 26-8-35.

Application for the loan of five Persian Manuscripts from the Librarian, Allahabad University. Grant loan Nos. 1, 2 and 5 ; decline that of Nos. 3 and 4 on account of rarity.
No. 2. 30-9-35.

Application for the loan of four Sanskrit Manuscripts from Mr. T. R. Chintamani, Madras. Ask Dr. Heron for the original application and grant loan.
No. 3. 30-9-35.

Report on manuscripts lent out during the month. Record. The Allahabad University may be allowed to execute a general bond for Rs. 1,000 as security against manuscripts to be lent to them from time to time.
No. 3. 28-10-35.

Applications for loan of Manuscripts from the Society : (*a*) Registrar, University of Madras ; (*b*) Bhandarkar Oriental Research Institute, Poona ; (*c*) M. Ramakrishna Kavi, Madras : (*a*) Only two MSS. to be lent out against Indemnity Bond for their value ; (*b*) Write that either a hand-written copy may be arranged for or a mechanical reproduction. Advice to be obtained regarding the use of the Society's reproducing apparatus ; (*c*) The applicant to be asked to apply for the manuscripts through Gaekwad's Oriental Institute or through any recognised Institution in Madras.
No. 5. 25-11-35.

MANUSCRIPTS—

Letter from the Deputy Director to the Government of India, Department of Education, Health and Lands, to the Director General of Archæology in India, regarding a collection of Manuscripts to be loaned to the Asiatic Society of Bengal. Accept, terms of letter of acceptance to be settled by General Secretary in consultation with Mr. N. G. Majumdar.
No. 9. 26 8-35.

MEETINGS—

Consideration of the programme of the Ordinary Monthly Meeting, May, 1935: (1) No meeting on the 6th May, Monday, on account of their Majesty's Jubilee Celebration. (2) The routine matters to be announced in the next General Meeting. (3) The Treasurer and General Secretary to arrange moderate gratuities to the menial staff.
No. 9. 29-4-35.

Date of next Ordinary Monthly Meeting. Next meeting in November.
No. 14. 30-9-35.

MEMBERSHIP—

Associate Membership. A special Council to be held on the 14th or 15th March for the consideration of the Anniversary commemoration volume; the institution of Associate Membership; and the application for a Royal title.
No. 9. 25-2-35.

Associate membership. Resolved that the proposal for the creation of a new form of Associate membership be rejected. That a Sub-Committee consisting of Sir U. N. Brahmachari, Dr. J. N. Mukherjee, and Mr. Van Manen be constituted to review the general question and to report.
No. 2 (special). 25-3-35.

List of members in arrears with subscriptions. Apply Rules.
No. 10. 29-4-35.

Removal of 10 names under Rule 38. Apply rules. Announce as removed from the member list under Rule 38.
No. 8. 24-6-35.

List of 14 members who are in arrears with subscriptions. Apply Rules.
No. 11. 29-7-35.

Removal of 7 names under Rule 40. Apply rules.
No. 8. 28-10-35.

MEMORIALS—

Recommendation of the Sir William Jones Medal Advisory Board. Accept the Board's recommendation, Sir U. N. Brahmachari.
No. 2. 28-1-35.

Recommendation of the Bruhl Memorial Medal Advisory Board. Accept the Board's recommendation, Mr. I. H. Burkill.
No. 3. 28-1-35.

Recommendation of the Indian Science Congress Calcutta Prize Advisory Board. Accept the Board's recommendation, Dr. M. N. Saha.
No. 4. 28-1-35.

Donation from Sir B. L. Mitter for the institution of a medal in memory of the late Mr. P. N. Bose. Accept with thanks. The General Secretary to put up draft of rules.
No. 3. 25-2-35.

Framing of Regulations regarding the award of the 'Pramatha Nath Bose Memorial Medal': Draft approved with the additional clause suggested by the General Secretary. To be recorded that the Medal Fund will be debited with the costs of making a die for the medal and that this debit will be gradually refunded to the Society from surplus of revenue over expenditure.

(1) The Medal shall be awarded every three years at the Ordinary Annual Meeting of the Asiatic Society of Bengal in February.

(2) The Medal shall be bestowed on a person who, in the opinion of the Council has made conspicuously important contributions to practical or theoretical Geology with special reference to Asia.

(3) The General Secretary shall at a meeting of the Council preceding the Ordinary Meeting in November place before the meeting the names of at least three Geological Experts and three members of the Society for consideration.

The Council shall then proceed to appoint an Advisory Board of not less than three members selected from the list placed before them provided that the Council, for special reasons, shall be entitled to select persons outside the list. The Advisory Board shall always include two Geological Experts and the General Secretary shall be an ex-officio member of the Board.

(4) The Advisory Board shall be termed 'The Pramatha Nath Bose Memorial Medal Advisory Board'. The Board shall appoint a Chairman from amongst its members who shall have a casting vote (in addition to his own vote) in the event of the number of votes being equally divided.

(5) The General Secretary shall call a meeting of the Advisory Board on the first convenient date subsequent to the first Monday of December, at the same time requesting members to bring with them to the meeting a detailed statement of the work or attainments of such candidates as they may wish to propose. The General Secretary shall also place before the Board for consideration detailed statements of the work or attainments of any other candidate submitted by any Fellow of the Society. The Board shall make such arrangements as may be necessary for the selection of a name to be submitted to the Council at their December meeting.

(6) Notwithstanding anything determined in these Regulations, it shall be within the competence of the Board to abstain from the selection of any name to be submitted for the year and to report accordingly to the Council, in which case, provided the Council concurs, the award for the year shall lapse.

No. 4. 29-4-35.

Recommendation Finance Committee No. 3 of 22-8-35. Letter from Sir U. N. Brahmachari suggesting that the period of award of Sir William Jones Memorial Medal may be changed from two years to three years. Recommend to Council the acceptance of the suggestion of Sir U. N. Brahmachari. Accepted by Council.

No. 4. 26-8-35.

Letter from Sir U. N. Brahmachari regarding the Sir William Jones Memorial Medal. Accept Sir U. N. Brahmachari's suggestion and change the period of the award into a triennial one. Further resolved that the advice of Sir B. L. Mitter be asked with regard to the wording of clause 6 of the Pramatha Nath Bose Memorial Medal, and that after revision by Sir B. L. Mitter this wording to be also adopted for all other medal awards in substitution of the present cluse 6.

No. 8. 26-8-35.

Matters relating to the Regulations regarding the award of the 'Pramatha Nath Bose Memorial Medal'. Accept Sir B. L. Mitter's suggestions and modify accordingly clauses 1 and 6 of the regulations for all other awards.

No. 6. 30-9-35.

Appointment of Advisory Board for the award of: (a) *Barclay Memorial Medal*; (b) *Joy Gobind Law Memorial Medal.*

(*a*) The Board to consist of:
The President,
Biological Secretary,
Medical Secretary,
Dr. S. L. Hora, and
The General Secretary
with power to co-opt additional members;

(*b*) The Board to consist of:
The President,
Biological Secretary,
Dr. S. L. Hora,
Dr. S. C. Law,
Col. R. N. Chopra, and
The General Secretary
with power to co-opt additional members.
No. 2. 28-10-35.

Recommendation of the Barclay Memorial Medal Advisory Board. Accept the Board's Recommendation, Dr. B. Sahni.
No. 9. 16-12-35.

Recommendation of the Joy Gobind Law Memorial Medal Advisory Board. Accept the Board's Recommendation, Prof. L. S. Berg.
No. 10. 16-12-35.

MISCELLANEOUS—

Letter from Prof. Vogel requesting back numbers of the Journal for the Kern Institute, Leiden, Holland, forwarded by Dr. Hora. Present one copy of every item of which more than 20 copies are available.
No. 2. 25-3-35.

Letter from the Private Secretary to H.E. the Viceroy regarding the Society's application for a Royal Charter. Record.
No. 2. 26-8-35.

Cessation of the excavations of Mohenjo Daro. A Sub-Committee consisting of Sir B. L. Mitter, Mr. Percy Brown, R. B. R. Chanda and Mr. Van Manen to draft a letter to be considered in circulation.
No. 3. 25-11-35.

Notification from the Calcutta Corporation regarding the Municipal Election. General Secretary to represent the Society.
No. 2. 16-12-35.

NATIONAL INSTITUTE OF SCIENCES OF INDIA—

Office accommodation to the National Institute of Science. The General Secretary to see whether the north front room on the ground floor can be conveniently vacated and placed at the disposal of the Institute. The Secretary and Dr. Hora to decide final arrangement.
No. 5. 28-1-35.

Report use of the Society's Hall for a Council Meeting of the National Institute of Sciences of India. Action approved.
No. 1. 29-4-35.

Representation of the Society on the Council of the National Institute of Sciences of India. Col. Chopra and Mr. Caldar to be the Society's representatives.
No. 3. 16-12-35.

PRESENTATIONS—

Report presentation by Baron Ow Wachendorf of the Official German Record of International Policies of the Great European Powers from 1871–1914 in 40 volumes. Record with thanks to donor.
No. 1. 29-7-35.

Presentation by Sir B. L. Mitter of a portrait of the late Mr. P. N. Bose. Accept with thanks to donor.
No. 1. 26-8-35.

PROVIDENT FUND.—

Recommendation Finance Committee No. 3 of 25-1-35. Application from Duftris Ebrahim and Nawab Jan to be allowed to contribute to the Society's Provident Fund. Grant to Ebrahim, hold over the case of Nawab Jan. Accepted by Council.
No. 9. 28-1-35.

Recommendation Finance Committee No. 5 of 26-7-35. Resignation of Mr. N. M. Ramachandran, File Clerk of the Society. Accept. Provident Fund Share to be paid for 5 years according to the regulations. Accepted by Council.
No. 7. 29-7-35.

PUBLICATIONS—

Division of the Journal. The two parts of the Journal to be styled JASB (Letters) and JASB (Science).
No. 14. 28-1-35.

Letter from the Government of Bengal regarding remuneration for work in connection with the preparation of the Descriptive Catalogue of Sanskrit MSS. Accept recommendation Finance Committee.
No. 2. 25-2-35.

Recommendation Finance Committee No. 3(*c*) of 22-2-35. Remuneration to Mr. C. Chakravarti, Sanskrit MSS. Catalogue. Accept proposal if Council agrees; Mr. Chakravarti is required to submit a monthly progress statement of work. Accepted by Council.
No. 6. 25-2-35.

Anniversary Commemoration Volume. The General Secretary reported progress of preparation. Record. Division of editorial labours to be ascertained from previous records, and materials to be distributed accordingly to the members concerned.
No. 1 (special). 14-3-35.

Recommendation, Publication Committee No. 1 of 25-3-35. Appointment of Secretary for the Publication Committee. Dr. Hora to be requested to accept the Secretaryship. Accepted by Council.
No. 5. 25-3-35.

Recommendation Publication Committee No. 2 of 25-3-35. Resolved that the Press Clerk be instructed to prepare a list of outstanding matter. Also resolved that the General Secretary be authorised to ask for certificates of press-readiness of papers placed before the Publication Committee and to press for speeding up the return of such papers. Accepted by Council.
No. 5. 25-3-35.

Recommendation Publication Committee No. 3 of 11-4-35: (*a*) Present position of the Journal; (*b*) Title lines. Journal.

(*a*) Record with satisfaction; (*b*) In the new series the name of the author of article to be on the left-hand side and the title of paper to be on the right-hand side page heading. Council Order: Minutes to be first circulated to the Council before being considered by it. The Publication Secretary to be empowered to act at his discretion in the meantime with reference to all materials in hand in anticipation of sanction.

No. 8. 29-4-35.

Recommendation. Publication Committee No. 5 of 11-4-35. Duties of the Secretary of the Publication Committee and the procedure to be adopted for the meeting of the Committee. Secretary to carry on entire correspondence with the Members of the Publication Committee and to transmit to office instructions to be forwarded to author. General Secretary to correspond with the press. Council Order: Minutes to be first circulated to the Council before being considered by it. The Publication Secretary to be empowered to act at his discretion in the meantime with reference to all materials in hand in anticipation of sanction.

No. 8. 29-4-35.

Recommendations of the Publication Committee. Minutes of the Meeting held on 11th April, 1935, to be first circulated to the Council before being considered by it.

The Publication Secretary to be empowered to act at his discretion in the meantime with reference to all materials in hand in anticipation of sanction.

No. 8. 29-4-35.

REPRESENTATION—

Representation of the Society on the Board of Trustees of the Indian Museum. Sir U. N. Brahmachari to be the Society's representative.

No. 2. 25-11-35.

Representation of the Society on the Council of the National Institute of Sciences of India. Lt.-Col. R. N. Chopra and Mr. C. C. Caldar to be the Society's representatives.

No. 3. 16-12-35.

REQUESTS—

Request for exchange of publications from Lingnan Science Journal, Lingnan University, Canton, China. Exchange Journal. Attempt to be made to obtain complete set by exchange.

No. 12. 29-7-35.

Request for exchange of publication from the Book Exchange Department, U.S.S.R. Society for cultural relations with Foreign Countries, Moscow. Grant.

No. 13. 29-7-35.

Request for exchange of publication from Institut für Volkerkunde der Universitat, Wien, Austria. Exchange Journal.

No. 14. 29-7-35.

Application for exchange of publications from the Government Epigraphist for India. Exchange Journal. Letters.

No. 1. 28-10-35.

Exchange of publications. Offer exchange with Journal Sinensia and Journal of the Sze Chuan Research Society.
No. 10. 28-10-35.

Request for the use of the Society's Hall by the Mining and Geological Institute of India. Grant; General Secretary's letter approved.
No. 1. 25-11-35.

ROYAL CHARTER—

Letter from the Private Secretary to H. E. the Viceroy regarding the Society's application for a Royal Charter. Record.
No. 2.

Royal Title. The General Secretary to consult Mr. Justice J. Lort-Williams and the Private Secretary to H.E. the Governor of Bengal and to prepare a draft.
No. 3 (special) 14-3-35.

RULES AND REGULATIONS—

Framing of Regulations regarding the award of the 'Pramatha Nath Bose Memorial Medal'. Draft approved with the additional clause suggested by the General Secretary. To be recorded that the Medal Fund will be debited with the costs of making a die for the medal and that this debit will be gradually refunded to the Society from surplus of revenue over expenditure.
No. 4. 29-4-35.

(1) The Medal shall be awarded every three years at the Ordinary Annual Meeting of the Asiatic Society of Bengal in February.

(2) The Medal shall be bestowed on a person who, in the opinion of the Council has made conspicuously important contributions to practical or theoretical Geology with special reference to Asia.

(3) The General Secretary shall at a meeting of the Council preceding the Ordinary Meeting in November place before the meeting the names of at least three Geological Experts and three members of the Society for consideration.

The Council shall then proceed to appoint an Advisory Board of not less than three members selected from the list placed before them provided that the Council, for special reasons, shall be entitled to select persons outside the list. The Advisory Board shall always include two Geological Experts and the General Secretary shall be an ex-officio member of the Board.

(4) The Advisory Board shall be termed 'The Pramatha Nath Bose Memorial Medal Advisory Board'. The Board shall appoint a Chairman from amongst its members who shall have a casting vote (in addition to his own vote) in the event of the number of votes being equally divided.

(5) The General Secretary shall call a meeting of the Advisory Board on the first convenient date subsequent to the first Monday of December, at the same time requesting members to bring with them to the meeting a detailed statement of the work or attainments of such candidates as they may wish to propose. The General Secretary shall also place before the Board for consideration detailed statements of the work or attainments of any other candidate submitted by any Fellow of the Society. The Board shall make such arrangements as may be necessary for the selection of a name to be submitted to the Council at their December meeting.

(6) Notwithstanding anything determined in these Regulations, it shall be within the competence of the Board to abstain from the selection of any name to be submitted for the year and to report accordingly to the Council, in which case, provided the Council concurs, the award for the year shall lapse.

Letter from Sir U. N. Brahmachari regarding the Sir William Jones Memorial Medal. Accept Sir U. N. Brahmachari's suggestion and change the period of the award into a triennial one. Further resolved that the advice of Sir B. L. Mitter be asked with regard to the wording of clause 6 of the Pramatha Nath Bose Memorial Medal, and that after revision by Sir B. L. Mitter this wording to be also adopted for all other medal awards in substitution of the present clause 6.
No. 8. 26-8-35.

Matters relating to the Regulations regarding the award of the 'Pramatha Nath Bose Memorial Medal'. Accept Sir B. L. Mitter's suggestions and modify accordingly clauses 1 and 6 of the regulations for all other awards.
No. 6. 30-9-35.

STAFF—

Recommendation Finance Committee No. 3(*d*) of 22-2-35. Withdrawal resignation, Cashier. Accept. Accepted by Council.
No. 6. 25-2-35.

Recommendation Finance Committee No. 9 of 26-4-35. Staff Salary increments. That the increments be given with effect from the beginning of the current year. Council order; Accept, with addition of Rs. 5 increase to Pandit B. B. Mukherjee with effect from 1st January, 1935.
No. 6. 29-4-35.

Recommendations of the Finance Committee of 26-4-35. Accept, with addition of Rs. 5 increase to Pandit B. B. Mukherjee with effect from 1st January, 1935.
No. 6. 29-4-35.

Consideration of the programme of the Ordinary Monthly Meeting May, 1935. The Treasurer and General Secretary to arrange moderate gratuities to the menial staff.
No. 9(3). 29-4-35.

Recommendation Finance Committee No. 5 of 24-5-35. Increment of salary to menial staff. Increment to menials recommended according to the Honorary Treasurer's proposals. Accepted by Council.
No. 4. 27-5-35.

Recommendation Finance Committee No. 6 of 24-5-35. Application from Abdul Ghani, Library Duftri. The Honorary Treasurer to look into the matter and to make recommendation. Accepted by Council.
No. 4. 27-5-35.

Application from File Clerk, Ramachandran, for leave. Applicant to be examined by Col. Knowles.
No. 9. 24-6-35.

Recommendation Finance Committee No. 5 of 26-7-35. Resignation of Mr. N. M. Ramachandran, File Clerk of the Society. Accept. Provident Fund Share to be paid for 5 years according to the regulations. Accepted by Council.
No. 7. 29-7-35.

Application from Shah Moinuddin Ahmad. Grant remission for two months without force of precedent.
No. 7. 30-9-35.

Application from Duftry Chunnu. Restitute pay list deduction last month on compassionate allowance to applicant and also to other members of staff whose pay has been cut under similar circumstances.
No. 8 30-9-35.

Application from Typist, N. Gupta. Leave granted for two weeks on half pay.
No. 9. 30-9-35.

Recommendation Finance Committee No. 9 of 24-9-35. Application from the Staff for Jubilee Bonus. Refer to Jubilee Committee. Accepted by Council.
No. 11. 30-9-35.

TAXES—

Notice regarding the re-assessment from the Calcutta Corporation. Action approved.
No. 1. 16-12-35.

List of
Patrons,
Officers, Council Members, Members, Fellows, and Medallists
# of the
Asiatic Society of Bengal,

On the 31st December, 1935.

PATRONS OF THE ASIATIC SOCIETY OF BENGAL.

1931 ..	**.. H.E. the Earl of Willingdon, G.M.S.I., G.C.M.G., G.M.I.E., G.B.E., Viceroy and Governor-General of India.**
1932 ..	**.. H.E. the Right Honourable Sir John Anderson, P.C., G.C.B., G.C.I.E., Governor of Bengal.**

1910–1916	.. Lord Hardinge of Penshurst, K.G., P.C., G.C.B.. G.C.M.G., G.C.S.I., G.C.I.E., G.C.V.O. I.S.O.
1917–1922	.. Marquess of Zetland, P.C., G.C.S.I., G.C.I.E.
1922–1927	.. Earl of Lytton, P.C., G.C.S.I., G.C.I.E.
1926–1931	.. Viscount Halifax, K.G., P.C., G.C.S.I., G.C.I.E.
1927–1932	.. Colonel Sir Francis Stanley Jackson, P.C., G.C.I.E.

OFFICERS AND MEMBERS OF COUNCIL OF THE ASIATIC SOCIETY OF BENGAL DURING THE YEAR 1935.

Elections Annual Meeting.

President

Sir Lewis Fermor, Kt., O.B.E., A.R.S.M., D.Sc. (London), F.G.S., M.Inst. M.M., F.R.S., F.A.S.B.

Vice-Presidents.

Sir David Ezra, Kt., F.Z.S., M.B.O.U.
Rai Sir Upendra Nath Brahmachari Bahadur, Kt., M.A., M.D., Ph.D., F.S.M.F., F.A.S.B.
Lt.-Col. R. Knowles, B.A. (Cantab.), M.R.C.S., L.R.C.P., I.M.S., F.A.S.B.
The Hon'ble Sir B. L. Mitter, K.C.S.I., Barrister-at-Law.

Secretaries and Treasurer.

General Secretary :—Johan van Manen, Esq., C.I.E., F.A.S.B.
Treasurer :—S. L. Hora, Esq., D.Sc. (Edin.), F.Z.S., F.R.S.E., F.A.S.B.
Philological Secretary :—S. K. Chatterji, Esq., M.A., D.Lit. (Lond.).
Joint Philological Secretary :—Shamsu'l 'Ulama Mawlawi M. Hidayat Hosain, Khan Bahadur, Ph.D., F.A.S.B.
Natural History Secretaries.
- Biology :—Baini Prashad, Esq., D.Sc., F.Z.S., F.R.S.E., F.A.S.B.
- Physical Science :—J. N. Mukherjee, Esq., D.Sc. (Lond.), F.C.S. (Lond.).

Anthropological Secretary :—Rai Bahadur Ramaprasad Chanda, B.A., F.A.S.B.
Medical Secretary :—Lt.-Col. R. N. Chopra, C.I.E., M.A., M.B., I.M.S., F.A.S.B.
Library Secretary :—A. M. Heron, Esq., D.Sc. (Edin.), F.G.S., F.R.G.S., F.R.S.E.

Other Members of Council.

L. R. Fawcus, Esq., B.A. (Cantab.), I.C.S.
Percy Brown, Esq., A.R.C.A., F.A.S.B.
The Hon'ble Mr. Justice J. Lort-Williams, K.C., Barrister-at-Law.
C. C. Calder, Esq., B.Sc., F.L.S.
N. G. Majumdar, Esq., M.A.

APPOINTMENTS, TRANSFERS, AND OTHER CHANGES DURING THE YEAR.

Mr. Johan van Manen, Acting Honorary Treasurer, *vice* Dr. S. L. Hora, absent, from 12-3-35 to 29-3-35, and from 25-9-35 to 15-10-35.
Sir Lewis Fermor, absent from 15-1-35 to 1-2-35; from 18-4-35 to 5-8-35; and from 17-9-35 to 1-11-35.
Dr. A. M. Heron, absent from 1-1-35 to 1-4-35; from 15-5-35 to 15-6-35; and from 25-9-35 to 18-10-35.
Mr. L. R. Fawcus, absent from 1-1-35 to 15-4-35; from 1-11-35 to 31-12-35.
Mr. Percy Brown, absent from 1-4-35 to 1-7-35.
Lt.-Col. R. N. Chopra, absent from 18-4-35 to 17-7-35.
Sir B. L. Mitter, absent from 11-4-35 to 25-6-35; and from 1-9-35 to 1-11-35.
Dr. S. K. Chatterji, absent from 1-5-35 to 1-9-35.
Dr. J. N. Mukherjee, absent from 31-5-35 to 30-9-35.
Sir U. N. Brahmachari, absent from 3-6-35 to 10-7-35.
Mr. C. C. Calder, absent from 1-6-35 to 1-12-35.
R.B. R. Chanda, absent from 5-8-35 to 9-9-35.
Justice Lort-Williams, absent from 15-7-35 to 5-11-35.

OFFICERS AND MEMBERS OF COUNCIL OF THE ASIATIC SOCIETY OF BENGAL ELECTED FOR THE YEAR 1936.

President.

H.E. The Rt. Hon'ble Sir John Anderson, P.C., G.C.B., G.C.I.E.

Vice-Presidents.

Sir David Ezra, Kt., F.Z.S., M.B.O.U.
Rai Sir Upendra Nath Brahmachari Bahadur, Kt., M.A., M.D., Ph.D., F.A.S.B.
Lt.-Col. R. Knowles, C.I.E., B.A. (Cantab.), M.R C.S., L.R.C.P., I.M.S., F.A.S.B.
The Hon'ble Sir B. L. Mitter, K.C.S.I., Barrister-at-Law.

Secretaries and Treasurer.

General Secretary :—Johan van Manen, Esq., C.I.E., F.A.S.B.
Treasurer :—S. L. Hora, Esq., D.Sc. (Edin.), F.Z.S., F.R.S.E., F.A.S.B.
Philological Secretary :—S. K. Chatterji, Esq , M.A., D.Lit. (London).
Joint Philological Secretary :—Shamsu'l 'Ulama Mawlawi M. Hidayat Hosain, Khan Bahadur, Ph.D., F.A.S.B.
Natural History Secretaries.
  Biology :—Baini Prashad, Esq., D.Sc., F.Z.S., F.R.S.E., F.A.S.B.
  Physical Science :—J. N. Mukherjee, Esq., D.Sc. (Lond.) F.C.S. (Lond.).
Anthropological Secretary :—Rai Bahadur Ramaprasad Chanda, B.A., F.A.S.B.
Medical Secretary :—Lt.-Col. R. N. Chopra, C.I.E , M.A., M.B., I.M.S., F.A.S.B.
Library Secretary :—A. M. Heron, Esq., D.Sc. (Edin.), F.G.S., F.R.G.S., F.R.S.E.

Other Members of Council.

Percy Brown, Esq., A.R.C.A., F.A.S.B.
C. C. Calder, Esq., B.Sc., F.L.S.
N. G. Majumdar, Esq., M.A.
Lt.-Col. N. Barwell, M.C., M.A., Barrister-at-Law.
K. C. Mahindra, Esq., B.A. (Cantab.).
M. Mahfuz-ul Haq, Esq., M.A.

ORDINARY MEMBERS.

R=Resident. N=Non-Resident. F=Foreign. A=Absent. L=Life.

An Asterisk is prefixed to names of Ordinary Fellows of the Society.

Date of Election.		
5-4-22	R	**Abdul Ali,** Abul Faiz Muhammad, m.a., m.r.a.s., f.r.s.l., f.r.g.s., f.r.h.s. 3, Turner Street, Calcutta.
7-3-27	R	**Abdul Kadir,** A. F. M., m.a. (Allahabad), maulvie fazil (Punjab), madrassah final (Calcutta), *Professor, Islamia College.* 19, Wellesley Square, Calcutta.
2-11-25	N	**Acharya,** Paramananda, b.sc., *Archæological Scholar.* Mayurbhanj State, Baripada.
2-3-21	R	**Agharkar,** Shankar Purushottam, m.a., ph.d., f.l.s., *Sir Rash Behari Ghose Professor of Botany, Calcutta University.* 35, Ballygunge Circular Road, Calcutta.
1 1-34	N	**Ahmad,** Mian Jamal-Ud-Din, b.a., b.t., *Member, Bureau of Education, Afghanistan.* 2, Andrabi, Kabul, Afghanistan.
6-6-17	N	**Aiyangar,** K. V. Rangaswami, Rao Bahadur, m.a., *Late Director of Public Instruction, Travancore; Principal, Central Hindu College, Hindu University.* Benares.
6-12-26	N	***Aiyangar,** S. Krishnaswami, m.a., ph.d., m.r.a.s., f.r.hist.s., f.a.s.b., *Rajasevasakta, Professor, University of Madras.* "Sripadam", 143, Brodies Road, Mylapore, Madras, S.
1-12-20	N	**Akbar Khan,** The Hon'ble Major Nawab Sir Mohammed, k.b.e., c.i.e., *Khan of Hoti.* Hoti, N.-W.F.P.
3-7-12	F	**Andrews,** Egbert Arthur, b.a. c/o The Royal Empire Society, Northumberland Avenue, London, W.C.
3-3-30	L	**Ashton,** Hubert Shorrock, *Merchant.* Trueloves, Ingatestone, Essex, England.
3-9-34	R	**Auden,** John Bicknell, m.a. (Cantab.), f.g.s., *Assistant Superintendent, Geological Survey of India.* 27, Chowringhee, Calcutta.
3-11-30	R	**Austin,** George John, *Sanitary Engineer, Messrs. J. B. Norton & Sons, Ltd.* Norton Building, Lalbazar, Calcutta.
4-4-17	N	**Awati,** P. R., b.a. (Cantab.), d.i.c., i.e.s., *Professor of Zoology.* Royal Institute of Science, Mayo Road, Fort, Bombay.
3-3-14	L	***Bacot,** J., f.a.s.b. Boulevard Saint-Antoine, 61, Versailles Seine-et-Oise, France.
1-11-26	R	**Bagchi,** Probodh Chandra, m.a., dr.-es-lettres (Paris), *Member of the A.S. of Paris; Lecturer, Calcutta University.* 9, Rustomjee Street, Ballygunge, Calcutta.
1-3-26	R	**Bagnall,** John Frederick, B.Sc., A.M.I.Mech.E., A.M.I.E.E., A.M.Inst.C.E., *Consulting Engineer, Messrs. Macneill & Co.* 2, Fairlie Place, Calcutta.

Date of Election.		
2-4-24	N	**Bahl**, K. N., D.SC., D.PHIL., *Professor of Zoology, Lucknow University.* Badshabagh, Lucknow.
7-3-27	A	**Bake**, A. A., *Doctorandus Or. Lit.* P.O. Santiniketan. (c/o The Kern Institute, Leiden, Holland.)
6-2-18	N	**Banerjee**, Narendra Nath, M.I.P.O.E.E., A.M.I.E., *Director of Telegraphs, Bombay Circle*, Bombay.
5-3-24	R	**Banerjee**, P. N., M.A. (Cantab.), A.M.I.E., F.C.U., *Civil Engineer.* 12, Mission Row, Calcutta.
1-11-26	N	**Barhut**, Thakur Kishoresingh Ji, *State Historian of Patiala Government.* History and Research Department, Patiala.
3-8-31	N	**Barua**, The Hon'ble Kanak Lal, Rai Bahadur, B.L., F.R.S.E., *President, Kamarupa Anusundhan Samiti, Minister to the Government of Assam.* Rosaville, Nangthymai, Shillong, Assam.
3-12-23	R	**Barwell**, N. F., LT.-COL. (RETD.), M.C., M.A., *Bar.-at-Law.* First Floor, 10, Middleton Street, Calcutta (*and*) Aylmerton House, Aylmerton, Norfolk, England.
6-1-30	A	**Bassewitz**, Count, *late Consul-General for Germany.* Europe.
4-3-29	R	**Basu**, The Hon'ble Bejoy K., C.I.E., M.A., B.L., *Solicitor, High Court.* 50, Goaltule Road, Bhawanipore, Calcutta.
3-12-24	R	**Basu**, Jatindra Nath, M.A., M.L.C., *Solicitor.* 14, Baloram Ghose Street, Calcutta.
1-3-26	R	**Basu**, Narendra Kumar, M.L.C., *Advocate, High Court.* 12, Ashu Biswas Road, Bhawanipore, Calcutta.
2-1-28	R	**Basu**, Narendra Mohan, M.SC., *Professor of Physiology.* 63, Hindusthan Park, Ballygunge, Calcutta.
7-1-29	R	**Basu**, Sarat Chandra, *Advocate.* 143, Dhurrumtollah Street, Calcutta.
30-9-35	N	**Basu**, Satyendra Kumar, M.SC., *Extra Assistant Conservator of Forests.* Clover Cot, Darjeeling.
5-2-34	N	**Bates**, William Hayes, *Ceramic Engineer, Burn & Co., Ld.* Ranigunj, Dt. Burdwan.
7-7-09	N	**Bazaz**, Rangnath Khemraj, *Proprietor, Shri Venkateshwar Press.* 7th Khetwadi, Bombay No. 4.
3-7-95	L	**Beatson-Bell**, Rev. Sir Nicholas Dodd, K.C.S.I., K.C.I.E. Edgeclisse, St. Andrews, Scotland.
7-5-34	R	**Bent**, William Antony, *Assistant, Messrs. George Henderson & Co., Ld.* 101/1, Clive Street, Calcutta.
4-3-25	R	**Benthall**, Sir Edward C., KT., *Merchant.* 37, Ballygunge Park, Calcutta.
7-4-09	L	***Bentley**, Charles A., C.I.E., M.B., D.P.H., D.T.M. & H., F.A.S.B., *Professor of Hygiene.* University of Egypt, Cairo.
4-6-28	N	**Bhadra**, Satyendra Nath, Rai Bahadur, M.A., *Principal, Jagannath Intermediate College.* Nayabazar, Dacca.
1-8-17	R	***Bhandarkar**, Devadatta Ramkrishna, M.A., PH.D., F.A.S.B. 10, Ritchie Road, Ballygunge, Calcutta.
5-4-26	N	**Bhatia**, M. L., M.SC., *Lecturer in Zoology.* Lucknow University, Lucknow.
4-11-08	R	**Bhattacharya**, Bisvesvar, B.A., M.R.A.S. 16, Townshend Road, Bhawanipore, Calcutta.
1-2-22	N	**Bhattacharya**, Vidhushekhara, Pandit, *Principal, Vidyabhavana.* Visvabharati, Santiniketan, Birbhum.
7-7-24	L	**Bhattacharyya**, Binoytosh, M.A., PH.D., *Rajaratna, General Editor, Gaekwad's Oriental Series, and Librarian, Oriental Collections, Baroda State.* Baroda.

Date of Election.		
2-4-28	R	**Bhattacharyya**, Nibaran Chandra, M.A., *Professor of Physiology, Presidency College.* 19, Hindusthan Road, Ballygunge, Calcutta.
4-6-28	N	**Bhattasali**, Nalini Kanta, M.A., Ph.D., *Curator, Dacca Museum.* Ramna, Dacca.
6-4-31	R	**Bhose**, Jotish Chander, M.A., B.L., *Advocate, Calcutta High Court.* 24A, Ray Bagan Street, Calcutta.
5-2-34	N	**Bhuyan**, Suryya Kumar, Rai Bahadur, M.A., B.L., A.E.S., *Honorary Provincial Director of Historical and Antiquarian Studies, Assam; Professor, Cotton College.* Gauhati, Assam.
5-3-28	R	**Biswas**, Charu Chandra, C.I.E., M.A., B.L., *Advocate, High Court.* 58, Puddopukur Road, P.O. Elgin Road, Calcutta.
1-8-23	R	**Biswas**, Kalipada, M.A. Royal Botanic Garden, Sibpur, Howrah.
3-1-27	N	**Bivar**, Hugh Godfrey Stuart, I.C.S., *District and Sessions Judge.* Murshidabad.
1-2-93	L	***Bodding**, Rev. P. O., M.A. (Christ.), F.A.S.B. Gulleraasveien 27, Vettakollen, Oslo, Norway.
4-11-35	A	**Bor**, N. L., M.A., D.Sc., F.L.S., I.F.S. c/o. The Conservator of Forests, Shillong, Assam.
6-3-95	R	***Bose**, Sir Jagadis Chandra, Kt, C.S.I., C.I.E., F.R.S., M.A., D.Sc., F.A.S.B. Bose Institute, 91, Upper Circular Road, Calcutta.
6-7-25	R	**Bose**, Manmatha Mohan, M.A., *Professor Emeritus, Scottish Church College.* 19, Gokul Mitra Lane, Hatkhola, Calcutta.
2-3-31	N	**Bose**, Sudhansu Kumar, B.Sc. (Cal.), A.R.S.M., B.Sc. (Mining) (London), *Professor of Mining and Surveying.* Indian School of Mines, Dhanbad.
4-5-31	A	**Bottomley**, John Mellor, B.A. (Oxon), I.E.S., *Director of Public Instruction, Bengal.* 1, Sunny Park, Ballygunge, Calcutta.
5-12-32	N	**Boyle**, Cecil Alexander, Major, D.S.O., *Adviser in Languages and Secretary to the Board of Examiners.* Army Headquarters, Simla.
3-12-34	R	**Brahmachari**, Phanindra Nath, M.Sc., M.B. 82/3, Cornwallis Street, Calcutta.
1-1-08	L	***Brahmachari**, Sir Upendra Nath, Kt., Rai Bahadur, M.A., Ph.D., M.D., F.S.M.F., F.A.S.B. 82/3, Cornwallis Street, Calcutta.
7-11-27	N	**Brahmachary**, Sarat Chandra, Rai Bahadur, M.A., B.T. Kasba Road, Ballygunge, P.O. Dhakuria, 24-Pergs.
3-7-07	L	***Brown**, John Coggin, O.B.E., D.Sc., F.G.S., M.I.M.E., M.Inst.M.M., M.I.E., F.A.S.B. c/o. Messrs. Grindlay & Co., 54, Parliament Street, Westminster, London, S.W.1.
6-10-09	R	***Brown**, Percy, A.R.C.A., F.A.S.B., *Curator, Victoria Memorial.* Calcutta.
8-1-96	F	***Burn**, Sir Richard, Kt., C.S.I., F.A.S.B. 9, Staverton Road, Oxford, England.
3-12-34	N	**Burt**, Sir Bryce Chudleigh, Kt., C.I.E., M.B.E., B.Sc., I.A.S., *Agricultural Expert, Imperial Council of Agricultural Research.* 1, York Road, New Delhi.
2-4-13	R	**Calder**, Charles Cumming, B.Sc., F.L.S., *Superintendent, Royal Botanic Garden.* Sibpur, Howrah.
4-11-29	R	**Campbell**, Sir George R., Kt., *Partner, Messrs. Mackinnon Mackenzie & Co.* 16, Strand Road, Calcutta.

Date of Election.		
7-2-27	R	**Captain**, DARA MANEKSHAW, *Merchant.* 1, Corporation Street, Calcutta.
1-9-20	R	**Chakladar**, HARAN CHANDRA, M.A. 28/4, Srimohan Lane, Kalighat, Calcutta.
7-3-32	R	**Chakraborty**, KHIRODE BEHARI, *Engineer and Manufacturer.* 7, Hindusthan Park, P.O Ballygunge, Calcutta.
4-7-27	R	**Chakravarti**, CHINTAHARAN, M.A., *Lecturer, Bethune College.* 28/3, Sahanagar Road, Kalighat, Calcutta.
3-2-30	N	**Chakravarti**, M. N., M.SC., *A.T.S.* "Gitanjali". 15, Lodge Road, Lahore.
5-6-33	N	**Chakravarti**, SUSIL KUMAR, M.A., *Zemindar.* Cooch Behar (Cooch Behar State).
3-1-27	N	**Chakravarty**, NIRANJANPRASAD, M.A., PH.D. (CANTAB.), *Government Epigraphist.* Office of the Government Epigraphist, Ootacamund, Nilgiris, S. India.
6-1-30	A	**Chakraverti**, SHRISH CHANDRA, B.L., *Attorney-at-Law, High Court, Calcutta.* 2, Marquis Street, Calcutta.
1-9-20	R	***Chanda**, RAMAPRASAD, RAI BAHADUR, B.A., F.A.S.B. P. 463, Manoharpukur Road, Kalighat, Calcutta.
3-1-06	L	**Chapman**, JOHN ALEXANDER, *Librarian, Rampur State Library.* Rampur.
7-5-28	R	**Chatterjea**, SIR NALINI RANJAN, KT., M.A., B.L., *Retired Judge and sometime acting Chief Justice, Calcutta.* 91A, Harish Mukerjee Road, Bhawanipore, Calcutta.
7-2-27	R	**Chatterjee**, ASHOKE, B.A. (CAL.), B.A. (CANTAB.), *Editor, "Welfare".* 91, Upper Circular Road, Calcutta.
27-10-15	F	**Chatterjee**, SIR ATUL CHANDRA, K.C.I.E., K.C.S.I., *Late High Commissioner for India.* Withdean, Cavendish Road, Weybridge, Surrey, England.
1-10-20	R	**Chatterjee**, NIRMAL CHANDRA. 52, Haris Mukerjee Road, Bhawanipore, Calcutta.
4-7-27	R	**Chatterjee**, PATITPABON, M.A., B.L., *Vakil, High Court.* 84, Harrison Road, Calcutta.
3-12-34	R	**Chatterjee**, SISIR CHANDRA, M.D. (EDIN.), M.R.C.P. (EDIN.), D.P.H. (EDIN.), *Chief Medical Officer, E.B. Ry.* 3, Koilaghat Street, Calcutta.
5-1-31	R	**Chatterji**, DURGACHARAN, M.A., *Lecturer in Sanskrit, Bethune College.* P. 317, Jatin Das Road, Kalighat, Calcutta.
4-6-34	N	**Chatterji**, BIJAN RAJ, PH.D. (London), D.LITT. (PUNJAB), *Professor of History, Meerut College.* Meerut.
7-5-28	R	**Chatterji**. KEDAR NATH, B.SC. (LONDON), A.E.C.S. (LONDON). 43, Wellesley Street, Calcutta.
7-6-11	R	**Chatterji**, KARUNA KUMAR, LT.-COL., I.T.F., M.C., V.H.A.S. 6/1, Wood Street, Calcutta.
6-8-24	R	**Chatterji**, SUNITI KUMAR, M.A. (CAL.), D.LIT. (LONDON), *Khaira Professor of Linguistics, Calcutta University.* "Sudharma", 16, Hindusthan Park, (off Rasbihari Avenue East End), Ballygunge, Calcutta.
5-11-24	R	**Chattopadhyay**, K. P., M.SC., *Education Officer, Corporation of Calcutta.* 55/1, Old Ballygunge 1st Lane, Calcutta.
2-11-25	N	**Chattopadhyaya**, KSHETRESA CHANDRA, M.A., *Lecturer in Sanskrit.* Allahabad University, Allahabad.
1-4-14	R	**Chaudhuri**, GOPAL DAS. 32, Beadon Row, Calcutta.
6-12-26	R	**Chokhani**, SREENARAYAN, *Secretary, Shree Hanuman Pustkalaya.* 8, New Ghuseri Road, Salkea, Howrah.
5-12-23	R	**Chopra**, B. N., D.SC., F.L.S., *Assistant Superintendent, Zoological Survey of India.* Indian Museum, Calcutta.

Date of Election.		
1-2-22	R	***Chopra**, R. N., C.I.E., M.A., M.D. (Cantab.), Brevet.-Col., I.M.S., F.A.S.B., *Professor of Pharmacology.* School of Tropical Medicine and Hygiene, Chittaranjan Avenue, Calcutta.
5-11-28	R	**Choprha**, Gopichand. 47, Khangraputty, Calcutta.
5-12-27	L	**Chowdhury**, Sir Chhajuram, Kt., C.I.E., M.L.C. 21, Belvedere Road, Calcutta.
2-4-28	R	**Chowdhury**, Rai Jatindranath, *Zemindar.* 36, Russa Road, Tollygunge, Calcutta.
3-7-07	L	***Christie**, William Alexander Kynoch, B.SC., PH.D., M.INST.M.M., F.A.S.B. c/o The Lloyds Bank, 6, Pall Mall, London, S. W. 1.
3-11-09	A	***Christophers**, Sir Samuel Rickard, Kt., C.I.E., O.B.E., F.R.S., F.A.S.B., M.B., Lt.-Col., I.M.S. 80, Onslow Gardens, South Kensington, London, S.W. 7.
1-9-15	R	**Cleghorn**, Maude Lina West (Miss), F.L.S., F.E.S. 43, Moulahat Road, Calcutta.
2-2-31	A	**Clough**, John, *Barrister-at-Law.* 17, Store Road, Ballygunge, Calcutta.
4-2-35	N	**Cookson**, Christopher Arthur, *Assistant, The Bombay Co., Ld.* Delhi.
5-5-30	F	**Cooper**, G. A. P. 29, Eccleston Street, Eaton Square, London, S.W. 1.
3-9-34	R	**Couchman**, Brigadier Harold John, D.S.O., M.C., *Surveyor-General of India.* Survey of India, 13, Wood Street, Calcutta.
6-11-33	R	**Coulson**, Arthur Lennox, D.SC. (Melb.), D.I.C., F.G.S. Geological Survey of India, 27, Chowringhee, Calcutta.
4-11-29	L	***Cotter**, Gerald de Purcell, B.A., SC.D. (Dublin), M.INST.M.M., F.G.S., F.A.S.B. "Fallowfield", Manor Road, Penn., Bucks., England.
5-3-34	R	**Craddock**, Sir Walter Merry, Kt., D.S.O., Colonel, M.C., *Stock Broker.* Bengal Club, Calcutta.
25-8-87	R	**Criper**, William Risdon, F.C.S., F.I.C., A.R.S.M. Konnagar.
2-11-25	A	**Crookshank**, Henry, B.A., B.A.I. (Dublin), *Assistant Superintendent, Geological Survey of India.* 27, Chowringhee, Calcutta.
7-3-32	R	**Darbari**, M. D., *Incorporated Accountant, S.B. Billimoria & Co., Ld.* 100, Clive Street, Calcutta.
4-3-25	R	**Das**, Ajit Nath, Rai Bahadur, M.R.A.S., F.Z.S., *Zemindar.* 24, South Road, Entally, Calcutta.
3-12-24	R	**Das**, Surendra Nath, M.B., *Medical Practitioner.* 67, Nimtala Ghat Street, Calcutta.
6-9-22	R	**Das-Gupta**, Surendra Nath, M.A., PH.D., I.E.S., *Principal, Sanskrit College.* 1, College Square, Calcutta.
1-3-26	R	**Datta**, Hirendra Nath, M.A., B.L., *Solicitor, High Court.* 139, Cornwallis Street, Calcutta.
3-6-25	N	**Datta**, S. K., B.A., M.B., CH.B. (Edin.), *Principal, Forman Christian College.* Lahore.
4-6-34	R	**Daver**, Nanabhoy Sorabji, B.A. (Hons.), *Mercantile.* c/o Parke, Davis & Co., 5, Dhurrumtollah Street, Calcutta.
6-8-24	L	**Davies**, L. M., Lt.-Col., late R.A., M.A., F.R.S.E., F.R.A.I., F.G.S. 8, Garscube Terrace, Murrayfield, Edinburgh, 12, Scotland.
4-3-29	R	**De**, J. C., M.B., Lt.-Col., I.M.S., *Superintendent, Campbell Medical School.* 135, Lower Circular Road, Calcutta.

Date of Election.		
19-9-95	L	**De**, Kiran Chandra, C.I.E., B.A., I.C.S. (Retd.), *Manager, Nawab Bahadur of Murshidabad Estate.* Lalbagh, Murshidabad.
5-12-32	N	**Deb**, Sushil Kumar, B.A. Sheikghat, P.O. Sylhet, Dt. Assam.
5-12-27	L	**Dechhen**, H.H. Maharani Kunzang, *Maharani of Sikkim.* Gangtok, Sikkim.
5-5-30	N	**Deo**, Sir Pratap Chandra Bhanj, K.C.I.E., *Maharajah, Ruler of Mayurbhanj State.* P.O. Baripada, Mayurbhanj, B.N.R.
5-11-34	R	**Dey**, Mukul, A.R.C.A. (Lond.), M.C.S.E. (U.S.A.), F.R.S.A., etc., *Principal, Govt. School of Art; Officer in charge, Art Section Keeper of Govt. Art Gallery; Trustee, Indian Museum.* 28, Chowringhee, Calcutta.
4-5-10	L	**Dhavle**, The Hon'ble Mr. Justice Shankar Balaji, B.A., I.C.S., *Judge, Patna High Court.* Patna.
4-8-20	N	**Dikshit**, Kashinath Narayan, M.A. c/o The Office of the Director-General of Archæology, New Delhi.
5-1-98	R	**Dods**, William Kane, *Agent, Hongkong and Shanghai Banking Corporation.* 6, Minto Park, Alipur, Calcutta.
2-2-31	A	**Douglas**, Gordon Watson, B.SC., D.L.M., *State Chemist to the Government of Bhopal.* State Laboratory, Bhopal, Central India.
2-7-02	L	**Doxey**, Frederick. "Ballygunge", Cooden Drive, Bexhill-on-Sea, Sussex, England.
7-11-32	R	**Driver**, Darab Cursetji, M.A. (Cantab.), *Barrister-at-Law, Constituted Attorney to Messrs. Tata & Sons, Ld., Managing Agents for The Tata Iron & Steel Co., Ld.* 71/73, Park Street, Calcutta.
7-5-34	R	**Duncan**, Percival Cairncross, *Mercantile Assistant with Messrs. George Henderson & Co., Ld.* 101/1, Clive Street, Calcutta.
1-7-29	A	**Dunn**, John Alexander, D.SC., D.I.C., F.G.S., *Assistant Superintendent, Geological Survey of India.* 27, Chowringhee, Calcutta.
2-1-33	N	**Dutch**, Robert Austen, B.A. (Cantab.), I.C.S., *District Magistrate.* Noakhali.
3-7-33	A	**Dutt**, Guru Saday, *Barrister-at-Law,* I.C.S. 12, Loudon Street, Calcutta.
30-9-35	R	**Dutt**, Mohendra Nath, L.E., *Consulting Engineer.* 12, Kailas Bose Lane, Howrah.
5-12-32	R	**Dutt**, Nalinaksha, M.A., PH.D., D.LITT. (Lond.), *Lecturer, Calcutta University.* 91-1B, Manicktollah Street, Calcutta.
5-3-28	A	**Eberl**, Otto, Dr. Jur., *Late Vice-Consul for Germany.* 2, Store Road, Ballygunge, Calcutta.
4-11-29	R	**Edwards**, L. Brooke, *Manager in India, The Baldwin Loco. Works of Philadelphia, U.S.A.* 5, Dalhousie Square, Calcutta.
5-1-31	L	**Evans**, Percy, B.A. (Cantab.), F.G.S., *Geologist.* c/o The Burma Oil Co., Digboi, Assam.
6-2-28	L	**Ezra**, Sir David, KT., F.Z.S., M.B.O.U. 3, Kyd Street, Calcutta.
2-12-29	N	**Fawcus**, Louis Reginald, B.A. (Cantab.), *Indian Civil Service, Magistrate and Collector.* Dacca.

Date of Election.		
3-8-04	R	*__Fermor__, Sir Lewis Leigh, kt., o.b.e., m.inst.m.m., d.sc., a.r.s.m., f.g.s., f.r.s., f.a.s.b., *Director, Geological Survey of India*, 27, Chowringhee, Calcutta.
31-10-06	F	**Finlow**, Robert Steel, c.i.e., b.sc., f.i.c., *Late Director of Agriculture, Bengal.* c/o Messrs. Grindlay & Co., Ld., 54, Parliament Street, London, S.W. 1.
4-1-26	F	**Fleming**, Andrew. Post Box No. 2436, Johannesburg, S. Africa.
5-11-13	R	**Fox**, Cyril S., d.sc. (Birm.), m.i.m.e., f.g.s. Geological Survey of India, 27, Chowringhee, Calcutta.
2-4-19	A	**Friel**, Ralph, i.c.s., b.a., b.sc. (Dublin), j.p., *Deputy Commissioner, Assam.* Silchar, Assam.
7-3-27	F	**Fukushima**, Naoshiro. 33, Hikawacho, Akasaka, Tokyo, Japan.
5-11-28	R	**Galstaun**, John Carapiet, o.b.e., *Merchant and Landholder.* 234/4, Lower Circular Road, Calcutta.
1-11-26	R	**Galstaun**, Shanazan, m.a., d.m.r.e., m.r.c.s., l.r.c.p., *Medical Practitioner, Radiologist, Medical College Hospital.* 39, Theatre Road, Calcutta.
6-10-09	R	*__Gangoly__, Ordhendra Coomar, b.a., f.a.s.b. 2, Asutosh Mukherjee Road, Calcutta.
5-11-34	R	**Gee**, Edward Rowland, m.a. (Cantab.), f.g.s., *Assistant Superintendent, Geological Survey of India.* 27, Chowringhee, Calcutta.
2-1-33	R	**George**, James, b.a. (Cantab.), i.c.s., *Special Officer, Political Department, Govt. of Bengal.* United Service Club, Calcutta.
6-2-33	L	**Ghatak**, Jyotish Chandra, m.a. (Triple), Sahitya Saraswati, Jyotish-Sagara, *Professor.* 4, Boloram Bose Ghat Road, Bhawanipore, Calcutta.
7-5-28	R	**Ghosal**, Upendra Nath, m.a., ph.d., *Professor of History, Presidency College.* 12, Badur Bagan Row, Calcutta.
5-4-26	R	**Ghose**, Bimal Chandra, *Barrister-at-Law.* 27/1, Harish Mukherjee Road, Calcutta.
1-4-29	R	**Ghose**, Deb Prosonno, *Zemindar.* 75, Beadon Street, Calcutta.
7-1-29	R	**Ghose**, The Hon'ble Mr. Justice Mohim Chandra, b.a. (Cal.), m.a. (Cantab.), i.c.s., *Barrister-at-Law (Inner Temple), Judge, High Court.* 4A, Little Russell Street, Calcutta.
3-12-24	R	**Ghose**, Sushil Chandra, b.a., *Deputy Magistrate.* 1, Sikdarbagan Street, Calcutta.
2-4-24	R	**Ghosh**, K., d.t.m., d.p.h. (Cantab.), l.m.s., *Medical Practitioner.* 45, Creek Row, Calcutta.
7-3-27	R	**Ghosh**, Phanindra Nath, m.a., ph.d., sc.d. (Padua), f.inst.p., *Sir Rashbehary Ghosh Professor of Applied Physics, University of Calcutta.* 92, Upper Circular Road, Calcutta.
4-9-12	R	**Ghosh**, Tarapada, *Zemindar.* 14, Paddapukur Street, Kidderpore, Calcutta.
1-2-26	R	**Ghuznavi**, Sir Abdul Halim, kt., m.l.a., *Zemindar.* 18, Canal Street, Entally, Calcutta.
6-8-28	R	**Ghuznavi**, Iskander S. K., *Zemindar and Member, Advisory Board of Industries, Government of Bengal.* 45, Jhowtolla Road, Calcutta (*and*) Dilduar, Mymensingh.

Date of Election.		
1-2-26	R	**Ghuznavi**, Alhadj Sir Abdelkerim Abu Ahmed Khan, Kt., M.L.C., *Zemindar of Dilduar.* 45, Jhowtolla Road, Calcutta (*and*) North House, Dilduar, Mymensingh.
3-12-34	R	**Gladstone**, John, *Assistant, Messrs. Gillanders Arbuthnot & Co., Ld.* 8, Clive Street, Calcutta.
5-3-28	R	**Gooptu**, Dwijendra Nath, *Medical Practitioner and Landholder.* 5, Middleton Street, Calcutta.
7-9-10	N	***Gravely**, Frederic Henry, D.Sc., F.A.S.B. Museum House, Egmore, Madras.
5-12-00	L	**Grieve**, James Wyndham Alleyne. c/o Messrs. Coutts & Co., 440, Strand, London, W.C. 2.
4-3-35	R	**Groth**, Edward M., *American Consul.* American Consulate General, 9, Esplanade Mansions, Esplanade, Calcutta.
4-2-25	R	**Guha**, B. S., M.A., Ph.D. (Harvard). Indian Museum, Calcutta.
6-12-26	R	**Guha**, The Hon'ble Mr. Justice Surendranath, Rai Bahadur, *Judge, High Court.* 20, Lansdowne Road, Calcutta.
7-5-28	R	**Gupta**, J. N., M.B.E., C.I.E., I.C.S., *Late Member, Board of Revenue, Government of Bengal.* 5, Riverside, Barrackpore.
5-3-19	N	**Gupta**, Sivaprasad. Seva Upavana, Benares City.
5-8-15	R	**Gurner**, Cyril Walter, B.A. (Oxon), I.C.S., *Chairman, Improvement Trust.* 4, Theatre Road, Calcutta.
6-3-01	N	**Habib-ur-**Rahman, The Hon'ble Nawab Sadr Yar Jung, Maulana, *Rais, Bhikanpur.* Habibganj, District Aligarh.
5-2-34	R	**Haldar**, Bharati Vikas, M.A., B.L., *Advocate, High Court.* 47, Haldarpara Road, Kalighat, Calcutta.
6-1-30	R	**Haldar**, Sudhindra Kumar, M.A., I.C.S., *Commissioner of Excise and Salt, Bengal.* 241, Lower Circular Road, Calcutta.
6-1-30	F	**Hamilton**, Sir Daniel Mackinnon, Kt., *Retired Partner, Messrs. Mackinnon Mackenzie & Co.* Balmacara, Rosshire, Scotland.
2-4-24	R	**Haq**, M. Mahfuz-ul, M.A., *Lecturer, Presidency College.* 8/B, Dargah Road, Park Circus, Calcutta.
1-5-12	R	**Harley**, Alexander Hamilton, M.A., I.E.S., *Principal, Islamia College.* 19, Wellesley Square, Calcutta.
1-2-26	F	**Harris**, H. G. c/o Messrs. Martin & Harris, Ltd., Rowlette Buildings, 17, Prinsep Street, Calcutta.
2-4-28	R	**Harris**, Lawrence Ernest, *Engineer, Manager for India, Messrs. Sulzer Brothers.* 4, Lyons Range, Calcutta.
5-11-19	N	**Hemraj**, Manyabara Raj Guru, C.I.E., Panditji. Dhokatole, Nepal.
3-2-30	F	**Henderson**, Alexander Gavin, B.A. (Oxon). Buscot Park, Faringdon, Berks, England.
6-8-28	R	**Heron**, A. M., D.Sc. (Edin.), F.G.S., F.R.G.S., F.R.S.E., *Superintendent, Geological Survey of India.* 27, Chowringhee, Calcutta.
7-6-11	L	***Hidāyat Ḥosain**, Muhammad, S͟hams 'ul-'Ulama, Khan Bahadur, Ph.D., F.A.S.B. 96/2c, Collin Street, Calcutta.
1-2-26	A	**Hingston**, H., Lt.-Col., I.M.S., M.D., *Late Surgeon to H.E. the Governor of Bengal.* England.
4-11-35	R	**Hirtzel**, Michael Arthur Frederick, B.A. (Trinity College, Oxford), *Mercantile Assistant, Macneill & Co.* 2, Fairlie Place, Calcutta.

Date of Election.		
4-6-28	N	**Hobart,** Robert Charles, i.c.s. Commissioner's House, Gorakhpur, U.P.
1-4-25	R	**Hobbs,** Henry, major, v.d., *Merchant.* 9, Old Court House Street, Calcutta.
1-2-32	R	**Holme,** James William, m.a., i.e.s. (retd.), *Principal, La Martinière.* 11, Loudon Street, Calcutta.
7-3-27	N	**Hopkinson,** Arthur John, i.c.s., *Secretary to the Government, N.-W.F. Province.* Peshawar, N.-W.F.P.
2-11-21	L	***Hora,** Sunder Lal, d.sc., f.z.s., f.r.s.e., f.a.s.b. Zoological Survey of India, Indian Museum, Calcutta.
5-11-34	R	**Hosain,** Prince Afsarul Muluk Mirza Muhammed Akram, Bahadur, *Political Pensioner and Landholder.* Afsar Manzil, 20, Ballygunge Circular Road, Calcutta.
6-6-23	L	***Howard,** Sir Albert, kt., c.i.e., m.a., f.a.s.b., *Late Director, Institute of Plant Industry, Indore, and Late Agricultural Adviser to States in Central India.* 14, Liskeard Gardens, Blackheath, London, S.E. 3.
2-9-35	N	**Howland,** Felix, *Professor of English.* Habibia College, Kabul, Afghanistan.
7-3-32	N	**Hughes,** Arthur, b.a. (Manchester), *Indian Civil Service, Magistrate and Collector,* Murshidabad, Bengal.
6-8-34	N	**Husain,** Syed Ata, m.a. (Cal.), c.e. (Roorkee), Retired *Superintending Engineer, Hyderabad State.* Mohalla Lingumpally, Hyderabad, Deccan.
6-6-23	N	***Hutton,** J. H., c.i.e., i.c.s., m.a., d.sc., f.a.s.b. Nowgong, Assam.
1-2-11	L	**Insch,** James. 18, Beechwood Avenue, Boscombe, Hants, England.
4-3-35	R	**Jack,** The Hon'ble Mr. Justice Robert Ernest, i.c.s., *Judge, High Court.* United Service Club, Calcutta.
4-2-35	N	**Jaffar,** S. M., b.a., *Author, Translator to the Judicial Commissioner, North-West Frontier Province.* 1508, Khudadad Street, Peshawar City, N.-W.F.P.
6-6-27	L	**Jain,** Baldeodas, *Merchant and Banker.* 21, Armenian Street, Calcutta.
2-2-21	R	**Jain,** Chhote Lal, m.r.a.s. 25, Central Avenue North, Calcutta.
6-1-30	N	**Jain,** Nirmal Kumar. Devashrama, Arrah.
6-8-28	N	**Jaitly,** P. L., *Electrical Engineer, Merchant.* 15, Canning Road, Allahabad.
1-11-26	F	**Jameson,** Thomas Blandford, major, m.c., m.a. (Cantab.), i.c.s. Claremont, Kingskerswell, S. Devon, England.
4-11-29	F	**Jarvis,** Robert Y. The Department of State, Washington, District Columbia, U.S.A.
6-5-25	R	**Jatia,** Sir Onkar Mull, kt., o.b.e., *Merchant.* 2, Rupchand Roy Street, Calcutta.
4-2-29	R	**Jenkins,** Walter Allen, d.sc. (Sheffield), i.e.s., *Principal, David Hare Training College.* United Service Club, Calcutta.
5-4-26	A	**Jones,** Thornton, *Solicitor.* c/o Messrs. Morgan & Co., 1, Hastings Street, Calcutta.
1-11-11	L	**Kamaluddin** Ahmad, Shams-ul-‘Ulamā, m.a., i.e.s., *Principal, Krishnagar College.* Krishnagar, Nadia.
5-3-24	R	**Kanjilal,** M. N., m.a. (Cal.), ll.b. (Cantab.), *Barrister-at-Law.* 17, Loudon Street, Calcutta.

Date of Election.		
3-12-34	N	**Kapur**, CHOONI LAL. Makermal Colliery, Mari Indus, Punjab.
6-11-33	R	**Kavyatirtha**, RAM DHAN, *Pundit.* 55, Surendranath Banerjee Road, Calcutta.
4-5-10	L	***Kemp**, STANLEY W., B.A., D.SC., F.R.S., F.A.S.B. 'Discovery Expedition,' 52, Queen Anne Chambers, Dean Farrar Street, London, S.W. 1.
2-5-30	N	**Kenny**, DICK EDWARD COURTENAY, LT.-COL., I.A., *Deputy Commissioner, Tavoy.* Burma.
2-12-29	N	**Khan**, MATIUR RAHMAN, *Khas Mahal Circle Officer.* 27, Panchbhaighat, Dacca.
3-12-24	R	**Khan**, REZAUR RAHMAN, M.A., B.L., *Deputy President, Bengal Legislative Council.* 28, Convent Road, Entally, Calcutta.
6-5-25	R	**Khanna**, VINAYEK LAL, M.R.A.S., *Merchant.* 137F, Balaram Dey Street, Beadon Street P.O., Calcutta.
2-8-26	R	**Khettry**, BENIMADHO, *Proprietor, Messrs. Gouri Shanker Khettry, Landholders, Bankers and Merchants.* 15, Paggiyapatti, Barabazar, Calcutta.
2-11-25	F	**Kimura**, R. (Ko-Shi), *Principal, College Department of Rissho University.* Osaki Machi, Tokyo, Japan.
5-2-34	N	**Kirby**, WALTER, B.SC., *Inspector of Mines in India.* Dhanbad, E.I.R.
4-11-35	R	**Klebe**, ANINA, née BRANDT, PH.D. (GREIFSWALD, GERMANY), *Psychologist.* 14/1, Sudder Street, Calcutta.
7-7-20	R	***Knowles**, ROBERT, C.I.E., M.R.C.S., L.R.C.P., B.A. (CANTAB.), F.A.S.B., LT.-COL., I.M.S. "Holmscroft", 2/1, Harrington Street, Calcutta.
6-5-25	F	**Koester**, DR. HANS, *Legations Sekretär.* Auswaertiges Amt, Abteilung W., Berlin W. 8, Wilhelmstrasse 75.
3-2-30	R	**Korni**, MICHAEL ALEXANDROWITZ (DR.), *Architect and Engineer, Messrs. Bird & Co.* Chartered Bank Buildings, Clive Street, Calcutta.
1-3-26	R	**Kramrisch**, STELLA (MRS.), PH.D., *Lecturer in Ancient Indian History (Fine Arts), Calcutta University.* 57, Ballygunge Circular Road, Calcutta.
3-9-34	R	**Krishnan**, K. S., D.SC., *Mahendralal Sircar Professor of Physics, Indian Association for the Cultivation of Science.* 210, Bowbazar Street, Calcutta.
6-11-33	A	**Krishnan**, M. S., M.A. (MADRAS), PH.D. (LOND.), A.R.C.S., D.I.C. (LOND.), *Assistant Superintendent, Geological Survey of India.* 27, Chowringhee, Calcutta.
2-4-28	R	**Kumar**, KUMAR KRISHNA, M.A., B.L., *Zemindar and Banker.* 31 & 31-1, Burtolla Street, Calcutta.
7-3-23	R	**Labey**, GEORGE THOMAS, M.C., *Bengal Pilot Service.* United Service Club, Calcutta.
4-2-35	R	**Lal**, RAM BIHARI, M.B., B.S., D.P.H., D.T.M. & H., D.B., *Professor of Vital Statistics and Epidemiology, All-India Institute of Hygiene and Public Health.* 21, Chittaranjan Avenue, Calcutta.
6-3-89	L	***La Touche**, THOMAS HENRY DIGGES, M.A., F.G.S., F.A.S.B. 230, Hills Road, Cambridge, England.
5-2-34	R	**Law**, BHABANI CHURN, *Merchant, Zamindar and Artist.* 223, Cornwallis Street, Calcutta.
5-8-14	L	**Law**, BIMALA CHARAN, M.A., B.L., PH.D., F.R.HIST.S. 43, Kailas Bose Street, Calcutta.

Date of Election.		
1-2-11	R	**Law,** NARENDRA NATH, M.A., B.L., PH.D. 96, Amherst Street, Calcutta.
4-2-35	R	**Law,** PARBUTTY CHURN. 223, Cornwallis Street, Calcutta.
1-7-14	R	**Law,** SATYA CHURN, M.A., B.L., PH.D., F.Z.S., M.B.O.U. 50, Kailas Bose Street, Calcutta.
3-9-34	R	**Ledrus,** MICHAEL, *Professor in Divinity, Lecturer at the Gregorian University, Rome; Member of the Society of Jesus, Editor, 'The New Review'.* St. Xavier's College, 30, Park Street, Calcutta.
7-6-26	R	**Lemmon,** RICHARD DENNIS, *Merchant.* c/o Messrs. Martin & Harris Ld., 17, Prinsep Street, Calcutta.
3-5-11	A	**Lomax,** C. E., M.A. La Martinière, 11, Loudon Street, Calcutta.
1-6-31	R	**Lort-Williams,** THE HON'BLE MR. JUSTICE JOHN, K.C., *Barrister-at-Law, Judge, High Court.* 227/1, Lower Circular Road, Calcutta.
5-7-26	A	**Lyne,** HOWARD WILLIAM, I.C.S. Khulna, E.B.R.
2-8-05	L	***McCay,** DAVID, LT.-COL., I.M.S., M.D., B.CH., B.A.O., M.R.C.P., F.A.S.B. c/o The Standard Bank of S. Africa, Cradock, Cape Province, S. Africa.
1-3-26	R	**McKay,** JOHN WALLACE. c/o Messrs. Duncan Bros. & Co., Ld., 101, Clive Street, Calcutta.
11-1-93	L	***Maclagan,** SIR EDWARD DOUGLAS, K.C.S.I., K.C.I.E., F.A.S.B. 39, Egerton Terrace, London, S.W. 3.
5-3-24	R	**McPherson,** JAMES. c/o Messrs. Begg Dunlop & Co., Ltd., 2, Hare Street, Calcutta.
7-6-16	N	**Mahajan,** SURYA PRASAD. Murarpur, Gaya.
3-3-20	R	**Mahalanobis,** P. C., M.A., B.SC., I.E.S., *Professor, Presidency College.* 210, Cornwallis Street, Calcutta.
1-3-11	R	**Mahtab,** SIR BIJAY CHAND, K.C.S.I., I.O.M., MAHARAJADHIRAJA BAHADUR OF BURDWAN. 6, Alipur Lane, Calcutta.
3-2-30	N	**Mahtab,** UDAY CHAND, B.A., *Maharaj Kumar of Burdwan.* The Palace, Burdwan.
6-2-24	R	**Mahindra,** K. C., B.A. (CANTAB.). Messrs. Martin & Co., 12, Mission Row, Calcutta.
9-6-20	R	**Majumdar,** NANI GOPAL, M.A. Archæological Survey of India, Indian Museum, Calcutta.
2-2-16	R	**Majumdar,** NARENDRA KUMAR, M.A., *Professor, Calcutta University.* 3, Government Place, West, Calcutta.
4-6-13	N	**Majumdar,** RAMESH CHANDRA, M.A., PH.D., *Professor, Dacca University.* Ramna, Dacca.
5-5-30	A	**Mallam,** G. L., CAPTAIN, I.A., *Census Superintendent.* Peshawar, N.-W.F.P.
7-5-28	R	**Mallik,** SATYENDRA CHANDRA, M.A., I.C.S. (RETD.). 7-3, Burdwan Road, Alipur, Calcutta.
4-11-29	R	**Mallya,** BANTWAL GANAPATHY, MAJOR, I.M.S., F.R.C.S.E. Civil Surgeon, Howrah.
6-2-18	L	***Manen,** JOHAN VAN, C.I.E., *Officier de l'Instruction Publique,* F.A.S.B. 6, Temple Chambers, 6, Old Post Office Street, Calcutta.
5-6-01	F	**Mann,** HAROLD HART, D.SC., M.SC., F.I.C., F.L.S. Woburn Experimental Station, Aspley Guise, Bedfordshire, England.
6-1-30	N	**Martin,** M. F. C., CAPT., R.E. c/o The Garrison Engineer, Mingladon, Burma.

Date of Election.		
5-5-30	A	**Matthias**, OWEN GARDINER, *Managing Director, Messrs. Smith Stanistreet & Co., Ld.* Stanistreet House, 18, Convent Road, Entally, Calcutta.
2-1-28	N	**Mello**, FROILANO DE, COLONEL, *Director-General of Medical Services in Portuguese India, Professor of Parasitology.* Nova Gôa.
5-11-84	L	***Middlemiss**, CHARLES STEWART, C.I.E., F.R.S., B.A., F.G.S., F.A.S.B. Aviemore, Crowborough, Sussex, England.
1-2-26	N	***Mills**, JAMES PHILIP, I.C.S., M.A. (OXON), J.P., F.A.S.B., *Deputy Commissioner.* Kohima, Naga Hills, Assam.
5-6-12	N	**Misra**, CHAMPA RAM, B.A., Rai Bahadur, Pandit, *Diwan, Chhatarpur State.* Bundelkhand, C.I.
2-4-24	R	**Mitra**, J. C., M.A., B.L., *Retired Accountant-General, Bengal.* 1, Abinash Mitter Lane, Calcutta.
5-3-24	R	**Mitter**, THE HON'BLE SIR B. L., K.C.S.I., M.A., B.L., *Barrister-at-Law, Member, Bengal Executive Council.* 5, Outram Street, Calcutta.
5-3-24	R	**Mitter**, THE HON'BLE MR. JUSTICE DWARKANATH, M.A., D.L., *Judge, High Court.* 12, Theatre Road, Calcutta.
4-3-29	R	**Mitter**, HIRANYA KUMAR, *Landholder.* 1, Jhamapukur Lane, Amherst Street P.O., Calcutta.
5-4-26	R	**Mitter**, KHAGENDRA NATH, RAI BAHADUR, M.A., *Professor, Presidency College (Retired).* 72/1, Bondel Road, Ballygunge, Calcutta.
30-9-35	R	**Mitter**, SUDHIR CHUNDER, *Barrister-at-Law.* 19, Camac Street, Calcutta.
1-11-26	R	**Modi**, JAL R. K., B.A. 4, Camac Street, Calcutta.
5-3-34	R	**Modi**, JEHANGIR JEEVANJI JAMSHEDJI, *Merchant.* 5, Dhurrumtollah Street, Calcutta.
6-8-24	N	**Moloney**, WILLIAM J., *General Manager of Reuter's for the East.* c/o 26/7, Dalhousie Square, Calcutta.
5-11-24	R	**Mookerjee**, B. N., B.A. (CANTAB.), *Engineer.* 12, Mission Row, Calcutta.
3-5-98	L	**Mookerjee**, SIR RAJENDRA NATH, K.C.I.E., K.C.V.O., HON. F.A.S.B. 7, Harington Street, Calcutta.
2-7-24	R	**Mookerjee**, SYAMA PRASAD, M.A., B.L., *Vakil, High Court, Vice-Chancellor, Calcutta University.* 77, Russa Road North, Calcutta.
5-6-33	A	**Morris**, C. J., *Captain, Indian Army, 2/3rd Q.A.O. Gurkha Rifles.* Razmak, Wazristan.
2-5-32	F	**Muhammad**, MIRZA, KHAN BAHADUR, C.I.E., LL.B., M.R.A.S., *Advocate.* Strand Road, Basrah.
2-2-21	R	**Mukerjee**, SUBODH CHANDRA, SHASTRI, M.A., DOCTEUR-ES-LETTRES (PARIS). 3/1A, Raja Rajabullav Street, Calcutta.
5-12-27	R	**Mukerjee**, SUSIL KUMAR, F.R.C.S. (EDIN.), D.O. (OXON), D.O.M.S. (LOND.), *Ophthalmic Surgeon, Carmichael Medical College Hospitals.* 1/1, Wood Street, Calcutta.
6-2-28	R	**Mukerji**, THE HON'BLE MR. JUSTICE MANMATHA NATH, KT., M.A., B.L., *Judge, High Court.* 8/1, Harsi Street, Calcutta.
3-3-30	N	**Mukharji**, ISAN CHANDRA, *Rai Bahadur, Tazimi Sardar and Retired Member of Jaipur Council.* Jaipur, Rajputana.
7-11-27	N	**Mukherjee**, DEVAPROSANNA, M.A., B.L., *Zemindar.* Burdwan.
2-8-26	R	**Mukherjee**, JNANENDRA NATH, D.SC. (LONDON), F.C.S. (LONDON), *Fellow of the Indian Chemical Society; Khaira Professor of Chemistry, University of Calcutta.* 92, Upper Circular Road, Calcutta.

Date of Election.		
5-7-26	R	**Mukhopadhyaya**, Prabhat Kumar, M.A., *Research Assistant, Calcutta University.* 27, Govinda Ghosal Lane, Bhawanipore, Calcutta.
2-2-21	R	**Mukhopadhyaya**, Ramaprasad, M.A., B.L. 77, Russa Road North, Bhawanipore, Calcutta.
2-4-28	R	**Mullick**, Kartick Churn, Kumar, *Director, Raja D. N. Mullick & Sons, Ltd.* Coloototola Rajbati, Chittaranjan Avenue, Calcutta.
6-8-34	R	**Mullick**, Manick Lall, *Landholder; Honorary Magistrate, Sealdah.* 123, Grey Street, Calcutta.
4-3-29	R	**Mullick**, Pramatha Nath, Rai Bahadur, *Zemindar and Landholder.* 129, Cornwallis Street, Calcutta.
7-5-28	N	**Murray**, Eugene Florian Oliphant, A.I.M.M., F.G.S., *Mining Geologist and Engineer.* Tatanagar, B.N.Ry.
1-6-21	N	**Muzammil-Ullah Khan**, The Hon'ble Nawab Sir Mohd., Khan Bahadur, K.C.I.E., O.B.E., K.B., LL.D., *Rais.* Bhikampur, Dt. Aligarh, U.P.
7-3-06	N	**Nahar**, Puran Chand, Rai Bahadur, *Solicitor.* c/o 48, Indian Mirror Street, Calcutta.
5-12-27	L	**Namgyal**, H.H. Maharaja Sir Tashi, K.C.I.E., *Maharaja of Sikkim.* Gangtok, Sikkim.
6-6-27	N	**Nandi**, Maharaja Sris Chandra, M.A., M.L.C., *Zemindar.* Kasimbazar Rajbari, Kasimbazar, Murshidabad.
4-2-29	N	**Narain**, Hirde, M.A., B.T., *Professor of History, Morris College.* Nagpur, C.P.
5-2-34	N	**Nariman**, Rustom, K., M.I.C.E., A.C.H., F.R.G.S. (*Retired Superintending Engineer, Punjab Irrigation*), *Professor of Engineering, Osmania University.* 'Gulistan', Sappers Lines, Secunderabad, Deccan.
5-3-28	R	**Neogi**, Panchanan, M.A., PH.D., I.E.S., *Professor of Chemistry, Presidency College.* 21, Kundu Lane, Belgachia, Calcutta.
3 11-30	A	**Newman**, Carl Damien, M.B.B.S., D.T.M. & H., *District Medical Officer, E.B.Ry.* 2, Belvedere Park, Alipur, Calcutta.
3-12-24	N	**Newman**, Chas F., F.R.G.S., M.R.S.T., M.C.P. Ramnagar, Benares.
7-4-15	F	**Ohtani**, Count Kozui. San-ya-so, Edomachi, Fushimi, Kyoto, Japan.
5-11-28	R	**Olpadvala**, E. S. 52, Chowringhee, Calcutta.
3-9-34	R	**Ow-Wachendorf**, Baron W., *German Consul General, Minister Plenipotentiary.* German Consulate General, 26, Lee Road, Calcutta.
5-12-23	N	**Pande**, Shiva Bandhan, *Retired Tahsildar and Zemindar.* Ramaipatti, Mirzapur, U.P.
5-4-26	R	**Parker**, Richard Henry, I.C.S., *Late Scholar of St. John's College, Oxford; Workmen's Compensation Commissioner.* Writer's Building, Calcutta.
4-11-29	F	**Parry**, Nevill Edward, I.C.S. (RETD.). Coombe Fishaere House, Ipplefen, Newton Abbot, S. Devon, England.
5-2-34	R	**Pasricha**, Chiranji Lal, M.A., M.B., B.CHIR. (Cantab.), M.R.C.S. (Eng.), L.R.C.P. (Lond.), Captain, I.M.S., *Professor of Pathology, Bacteriology and Helminthology, School of Tropical Medicine and Hygiene.* 11, Rowland Road, Calcutta.

Date of Election.		
6-5-29	F	**Pawsey,** C. R., *Indian Civil Service.* c/o The Lloyds Bank, 6, Pall Mall, London, S.W. 1.
6-6-88	L	**Pennell,** Aubray Percival, B.A., *Barrister-at-Law.* Lamb's Building, Temple, London, E.C. 4.
5-2-34	N	**Percival,** Frederick George, PH.D. (LOND.), F.G.S., *General Superintendent, Ore Mines and Quarries, Tata Iron and Steel Co.* Jamshedpur.
1-4-25	R	**Perier,** Ferdinand, S.J., *Most Reverend the Archbishop of Calcutta.* 32, Park Street, Calcutta.
7-4-30	A	**Pessein,** Rev. J. F., *Catholic Missionary, Superior of the Catholic Missionary Sanatorium.* Wellington, Nilgiris.
3-2-30	A	**Pettigrew,** Rev. William, *Missionary.* American Baptist Foreign Mission Society, P.O. Kangpokpi, Manipur, Assam.
6-4-31	N	**Prasad,** Sharda. c/o Messrs. Gopinath Lal Behari, Satna.
3-4-18	L	***Prashad,** Baini, D.SC., F.Z.S., F.R.S.E., F.A.S.B., *Director, Zoological Survey of India.* Indian Museum, Calcutta.
3-8-25	N	**Pruthi,** Hem Singh, M.SC. (PUNJAB), PH.D. (LONDON), *Imperial Entomologist, Imperial Institute of Agricultural Research.* Pusa, Darbhanga.
3-12-24	R	**Pushong,** E. S., M.D., L.S.A., *Medical Practitioner.* 1, Chapel Road, Hastings, Calcutta.
3-11-30	R	**Rahman,** Shah Kalimur, M.A., *Lecturer in Arabic and Persian, Calcutta University.* 51, Baitakhana Road, Calcutta.
6-8-34	R	**Rao,** U. Shanker, *Bengal Pilot Service.* 83, Chowringhee, Calcutta.
1-2-26	N	**Rao,** Y. Ramachandra, Rao Sahib, M.A., F.E.S., *Locust Research Entomologist.* McLeod Road, Karachi.
2-7-24	N	**Ray,** Abinash Chandra, B.A. R.M.H.E. School, P.O. Baidyabati.
7-9-21	R	**Ray,** Hem Chandra, M.A., PH.D. (LONDON). P. 39A, Manicktollah Spur, Calcutta.
5-1-21	N	**Ray,** Jagadisnath, Maharaja, *Maharaja of Dinajpore.* Dinajpore.
5-3-90	R	***Ray,** Sir Profulla Chandra, KT., C.I.E., D.SC., F.A.S.B. University College of Science, 92, Upper Circular Road, Calcutta.
5-11-28	L	**Reinhart,** Werner, *Merchant.* c/o Messrs. Volkart Bros., Rychenberg, Winterthur, Switzerland.
6-2-28	R	**Reneman,** Nico., Kian Gwan Co. (India), Ld., 4, Lyons Range, Calcutta.
2-4-24	F	**Richards,** F. J., I.C.S. 6, Lexham Gardens, London, W. 8.
5-2-34	R	**Richter,** Herbert, Dr. Jur., *Vice-Consul for Germany.* 26, Lee Road, Calcutta.
1-4-29	A	**Rizvi,** Syed Hamid Husain, *Excise Sub-Inspector.* Mohalla Sanechri, Near Musjid of Munshi Sk. Ghassu, Saugor, C.P.
3-12-24	L	**Roerich,** George Nicholas, M.A., M.R.A.S., *Orientalist.* 310, Riverside Drive, New York, U.S.A. ("Urusvati" Naggar, Kulu, Punjab).
2-7-28	L	**Roerich,** Nicholas, *Professor, Honorary President, Master Institute of United Arts, New York, U.S.A., Artist-Painter.* 310, Riverside Drive, New York, U.S.A.
3-12-24	N	**Rogers,** T. E., *Tea Planter.* The Tyroom Tea Co., Ld., Kharikatia, Assam.

Date of Election.		
4-12-01	F	***Ross**, Sir Edward Denison, KT., C.I.E., PH.D., F.A.S.B., *Director, School of Oriental Studies.* Finsbury Circus, London, E.C. 2.
5-6-33	R	**Rossetti**, Felix Francis Leo, *Secretary, Y.M.C.A.* 42, Corporation Street, Calcutta.
6-12-26	R	**Roy**, A. K., *Barrister-at-Law, Advocate-General, Bengal.* 3, Upper Wood Street, P.O. Theatre Road, Calcutta.
1-12-30	N	**Roy**, Kumar Kamalranjan, B.A., *Zemindar.* Kashimbazar Post, Dt. Murshidabad.
4-3-35	R	**Roy**, Saileswar Singh, *Landholder.* 15, Lansdowne Road, Calcutta.
6-8-24	N	**Roy-Chowdhury**, Brajendra Kishore, *Zemindar.* (53, Sukea Street, Calcutta.) Gauripur, Mymensingh.

7-5-28	N	***Saha**, Megh Nad, D.SC., F.R.S., F.A.S.B., *Professor of Physics, University of Allahabad.* Katra, Allahabad.
5-11-24	N	***Sahni**, B., M.A., SC.D. (Cantab.), D.SC., F.G.S., F.A.S.B., *Professor of Botany.* The University, Lucknow.
5-2-34	L	**Sale**, Harold Montaguf, M.A., F.G.S., *Geologist, Burmah Oil Co., Ld.* c/o Burmah Oil Co., Ld., Digboi, Assam.
3-12-24	R	**Sarkar**, C. K., C.E., *Engineer and Architect.* 10, Hastings Street, Calcutta.
4-2-35	R	**Sarkar**, Nalini Ranjan. Hindusthan Buildings, Corporation Street, Calcutta.
4-2-35	N	**Sayeeduddin**, Mohammed, B.SC., M.A. (Edin.), F.R.M.S., F.F.SC., *Professor of Botany, Osmania University.* Hyderabad, Deccan.
6-3-33	R	**Seal**, Satis Chandra, M.A., B.L., *Honorary Secretary, Indian Research Institute.* 55, Upper Chitpore Road, Calcutta.
5-2-34	R	**Selzam**, Edwart von, *German Diplomatic Service, Consulate-General for Germany.* 26, Lee Road, Calcutta.
1-4-25	R	**Sen**, Benoy Chandra, M.A. 'Rupeswar', Diamond Harbour Road, Behala.
3-12-24	R	**Sen**, H. K., M.A., D.SC. (London), D.I.C., *Professor o Chemistry, University College of Science.* 92, Upper Circular Road, Calcutta.
5-12-23	L	**Sen**, Lakshman, H.H. Raja of Suket. Suket State, Punjab.
1-4-29	R	**Sen-Gupta**, Nares Chandra, M.A., D.L., *Advocate, High Court.* 36, Girish Mukherjee Road, Bhawanipore, Calcutta.
5-4-26	R	**Senior-White**, Ronald, F.E.S., F.R.S.T.M. & H., *Malariologist.* 5, Godfrey Mansions, Garden Reach, Calcutta.
1-12-97	R	**Seth**, Mesrovb Jacob, M.R.A.S., M.S.A., F.R.S.A., *Examiner in Classical Armenian to the Calcutta University.* 9, Marsden Street, Upper Flat, Calcutta.
5-7-11	L	***Sewell**, Robert Beresford Seymour, C.I.E., M.A., SC.D. (Cantab.), M.R.C.S., L.R.C.P., F.Z.S., F.L.S., F.R.S., F.A.S.B., LT.-COL., I.M.S., *Late Director, Zoological Survey of India.* 18, Barrow Road, Cambridge, England.
2-11-25	A	**Sharif**, Mohammad, D.SC., F.R.M.S., F.L.S., *Lecturer in Zoology.* Muslim University, Aligarh.
6-5-29	N	**Sharma**, Sri Ram, M.A., M.R.A.S., M.A.O.S., *Professor of History.* D.A.V. College, Lahore.

Date of Election.		
5-8-35	R	**Shattock**, JOHN SWITHIN HARVEY, B.A. (Oxon.), I.C.S., *Assistant Private Secretary to His Excellency the Governor of Bengal.* Government House, Calcutta.
2-5-23	N	**Shebbeare**, E. O., *Conservator of Forests.* Darjeeling.
6-1-09	N	**Shirreff**, ALEXANDER GRIERSON, B.A., I.C.S. *Commissioner, Gorakhpur.* U.P.
4-1-26	N	**Shortt**, H. E., LT.-COL., I.M.S., *Director, King's Institute, Guindy.* Madras.
5-1-31	N	**Shukla**, JAGANNATH PRASAD. Trans Gomti Outram Road, near Badshahnagar Railway Station, Lucknow.
6-2-28	L	**Shumser** JUNG BAHADUR RANA, SIR KAISER, K.B.E., SUPRADIPTA MANYAVARA, LIEUT.-GENERAL, *Nepalese Army.* Kaiser Mahal, Kathmandu, Nepal.
5-2-02	N	**Shyam Lal**, LALA, M.A., LL.B. Nawabganj, Cawnpore, U.P.
4-11-29	R	**Siddiqi**, MOHAMMAD ZUBAYR, M.A., PH.D., *Sir Asutosh Professor of Islamic Culture, Calcutta University.* P. 274, Bright Street, Park Circus, Calcutta.
5-3-13	L	***Simonsen**, JOHN LIONEL, D.SC., F.I.C., F.A.S.B. University College of North Wales, Bangor, North Wales.
6-2-18	N	**Singh**, MANYABARA BADAKAJI MARICHI MAN, PANDITJI, C.I.E. 38, Khichapokhari, Kathmandu, Nepal.
4-11-29	F	**Singh**, JAIPAL, M.A. (*Modern Greats*), *St. John's College, Oxford University.* Achimota College, Accra, West Africa.
5-3-34	L	**Singh**, HIS HIGHNESS THE HON'BLE MAHARAJADHIRAJA SIR KAMESWAR, K.C.I.E. Darbhanga.
2-1-33	N	**Singh**, RUDRA PERTAB, RAO BAHADUR, *Proprietor, Sonbarsa Raj.* Sonbarsa P.O., District Bhagalpore.
4-2-35	N	**Singh**, SARABJIT, M.A., B.L. P.O. Imphal, Manipur State.
3-6-35	R	**Singhania**, RAGHUNATH PRASAD, VIDYABHUSAN-VISARAD, *Secretary, Rajasthan Research Society.* 27, Baranoshi Ghose Street, Simla, Calcutta.
5-9-12	R	**Singhi**, BAHADUR SINGH. (Azimganj, Murshidabad.) 48, Gariahat Road, Calcutta.
7-8-33	N	**Sinh**, RAGHUBIR, RAJKUMAR, M.A., LL.B., *Heir-Apparent of Sitamau State.* Raghubir Niwas, Sitamau, C.I.
7-5-28	F	**Sinha**, LORD, OF RAIPUR. Queen Anne Mansions, St. James' Park, London.
6-6-27	N	**Sinha**, SHEONANDAN PRASAD, M.B., *Assistant Surgeon.* Government Hospital, Jamshedpur.
6-2-28	R	**Sinha**, SUHRID CHANDRA, KUMAR, M.SC. 18, Ananda Lane, P.O. Shambazar, Calcutta.
4-1-26	N	**Sinton**, J. A., O.B.E., LT.-COL., I.M.S., V.C., *Officer-in-Charge, Malaria Bureau.* Central Research Institute, Kasauli.
5-7-16	L	**Sircar**, GANAPATI, VIDYARATNA. 69, Beliaghatta Main Road, Calcutta.
5-3-24	N	**Sircar**, THE HON'BLE SIR NRIPENDRA NATH, K.C.S.I., KT., M.A., B.L., *Barrister-at-Law, Law Member, H.E. The Viceroy's Executive Council.* New Delhi.
5-3-24	R	**Sircar**, SIR NIL RATAN, KT., M.A., M.D., *Physician.* 7, Short Street, Calcutta.
7-11-32	N	**Sitling**, G. T. The Ong Press, Kalimpong, D.H. Ry.
5-8-29	R	**Sommerfeld**, ALFRED, *Merchant.* c/o Mousell & Co., Mercantile Buildings, Lall Bazar, Calcutta.
3 9-34	R	**Sondhi**, VED PALL, M.SC., F.G.S., *Assistant Superintendent, Geological Survey of India.* 27, Chowringhee, Calcutta.

Date of Election.		
7-3-27	R	**Stagg**, M., Lt.-Col., R.E., O.B.E., *Master, H.M.'s Mint.* 47, Strand Road, Calcutta.
7-3-23	F	**Stamp**, L. Dudley, B.A., D.Sc. University of London, London School of Economics, Houghton Street, London, W.C. 2.
4-1-26	N	**Stapleton**, Grace (Miss), M.D., B.S. (London). Dufferin Hospital, Delhi.
28-9-04	L	***Stapleton**, Henry Ernest, M.A., B.Sc., I.E.S., F.A.S.B., *Late Director of Public Instruction, Bengal.* St. Brelade, Jersey, C.I, England.
5-11-28	N	**Statham**, R. M., C.I.E., B.A., I.E.S., *Educational Commissioner with the Government of India.* New Delhi.
6-5-25	R	**Staub**, Max, *Consul for Switzerland.* 100, Clive Street, Calcutta.
1-11-22	A	**Strickland-Anderson** (Mrs.). 1, Alipur Park, Calcutta.
2-6-20	R	**Suhrawardy**, Sir Hassan, O.B.E., Lt.-Col., Kt., M.D., F.R.C.S.I., D.P.H., *Chief Medical Officer, E.B. Ry., late Vice-Chancellor, Calcutta University.* 3, Suhrawardy Avenue, Park Circus, Calcutta.
3-3-20	N	**Sundararaj**, Bunguru, M.A., Ph.D., *Director of Fisheries.* Chepauk, Madras.
7-11-32	L	**Suvarna**, Shumser Jung Bahadur Rana, *Major-General in the Nepalese Army.* Singha Darbar, Kathmandu, Nepal.
6-4-98	R	**Tagore**, Sir Pradyot Coomar, Kt., Maharaja Bahadur. "Tagore Castle", 12, Prasanna Coomar Tagore Street, Calcutta.
7-11-27	R	**Tarkatirtha**, Bimalananda, *Kaviraj, Punditbhusan, Byakaranatirtha.* 90/3, Grey Street, Calcutta.
31-8-93	L	**Tate**, George Passman. 56, Cantonment, Bareilly, U.P.
2-5-32	R	**Thakur**, Amareswar, M.A., Ph.D., *Lecturer, Calcutta University, Hon. Secretary, Sanskrit Publication Department, Metropolitan Printing and Publishing House.* 29, Sadananda Road, P.O. Kalighat, Calcutta.
2-12-29	A	**Thomas**, H. W., F.C.S., M.P.S., *Senior Partner and Chairman of the Managing Directors, Messrs. Smith Stanistreet & Co.* Stanistreet House. 18, Convent Road, Entally, Calcutta.
1-6-04	L	***Tipper**, George Howlett, M.A., F.G.S., M.Inst.M.M., F.A.S.B. "The Laurels", Glebe Road, Cambridge, England.
4-3-29	A	**Travers**, Sir Walter Lancelot, Kt., C.I.E., O.B.E., M.L.C., *Tea Planter, Baradighi Tea Estate.* Baradighi P.O., B.D.R., Jalpaiguri.
7-5-28	F	**Tucci**, Guiseppe, Ph.D., *Late Professor of Religions and Philosophy of India and the Far East, University of Rome; Professor of Chinese, University of Naples.* Naples, Italy.
5-7-26	A	**Tyson**, John Dawson, C.B.E., M.A. (Oxon), I.C.S., J.P., *Late Private Secretary to H.E. the Governor of Bengal.* Government House, Calcutta.
3-9-34	R	**Ulser**, M. E. M. M., *Consul General for Belgium.* 9, Pretoria Street, Calcutta.
6-8-28	N	**Urchs**, Oswald, M.D. c/o Messrs. Havero Trading Co., Ld., Post Box 642, Bombay.
7-3-27	R	**Urquhart**, Rev. W. S., M.A., D.D., D.Litt., *Principal, Scottish Church College, and Late Vice-Chancellor, Calcutta University.* 3 & 4, Cornwallis Square, Calcutta.

Date of Election.		
4-7-27	N	**Vance**, R. L., M.B., B.C.H., B.A.O. (Dub.), L.M. (Rot.), MAJOR, I.M.S., *Officiating Chief Medical Officer, Western India States Agency.* Rajkot, Kathiawar.
7-8-33	R	**Vedantatirtha**, Vanamali, M.A., *Formerly Professor, Cotton College, Gauhati.* 8/4-E, Nepal Bhattacharya Lane, Kalighat, Calcutta.
6-6-32	R	**Vere-Hodge**, Mrs. E. H., *Author.* 9/4, Middleton Row, Calcutta.
5-7-05	R	**Vidyabhushan**, Amulya Charan. Vangiya Mahakosha, 5, Jadu Mitter Lane (North), Shambazar, Calcutta.
1-2-32	R	**Visser**, Dr. Ph. C., *Consul-General for the Netherlands.* E-1, Clive Buildings, Clive Street, Calcutta.
6-3-01	L	***Vogel**, Jean Philippe, LITT.D., F.A.S.B. Noordeindsplein, 4a, Lieden, Holland.
27-9-94	L	**Vost**, William, LT.-COL., I.M.S. Leicester Lodge, 1, Medina Villas, Hove, Sussex, England.
6-5-25	R	***Wadia**, D. N., M.A., B.SC., F.R.G.S., F.A.S.B., *Geological Survey of India.* 27, Chowringhee, Calcutta.
5-3-28	A	**Waight**, Harry George, B.A. (Oxon. and Lond.), F.R.G.S., I.C.S., *District and Sessions Judge.* Burdwan.
2-5-27	A	**Watson**, Sir Alfred Henry, KT., *Late Editor, The "Statesman", Calcutta.* England.
2-2-31	A	**Wauchope**, R. S., O.B.E., A.I.C.E., F.R.A.I., MAJOR, I.A. 8, Park Chambers, 93, Park Street, Calcutta.
6-2-33	N	**Wellsted**, Thomas Arthur, A.R.S.M., B.SC., ASSOC. INST. M.M., *Mining Engineer.* Mansar, P.O. Kandri, Ramtek, C.P.
6-2-33	R	**West**, William Dixon, M.A. (Cantab.), *Assistant Superintendent, Geological Survey of India.* 27, Chowringhee, Calcutta.
1-11-26	R	**Westcott**, Foss, Most Reverend, D.D. (Cantab.), HONORARY D.D. (Oxon), *Lord Bishop of Calcutta and Metropolitan of India, Burma and Ceylon* Bishop's House, 51, Chowringhee, Calcutta.
19-9-06	L	***Whitehead**, Richard Bertram, F.A.S.B., I.C.S. (RETD.). 30, Millington Road, Cambridge, England.
6-5-29	A	**Williams**, Henry French Fulford, M.A., Clare College (Camb.), *Chaplain of Barrackpore.* Barrackpore.
6-2-28	F	**Williams**, T. Taliesin, M.A., B.SC. 2, Orchard, Welwyn Garden City, Herts., England.
3-2-34	R	**Wilson**, Harry Ellis Chasler, M.B., CH.B., D.S., *Professor of Biochemistry and Nutrition, All-India Institute of Hygiene and Public Health.* U.S. Club, Calcutta.
7-3-06	L	***Woolner**, Alfred Cooper, C.I.E., M.A., D.LITT. (Hon.), F.A.S.B., *Vice-Chancellor, Punjab University.* 53, Lawrence Road, Lahore.
1-4-08	R	**Wordsworth**, William Christopher, M.A., I.E.S. (RETD.). c/o The "Statesman", Chowringhee Square, Calcutta.
7-3-27	N	**Wright**, Frederic Maitland, *Broker.* Post Box No. 72, Bombay.
5-2-19	N	***Yazdani**, Ghulam, M.A., F.A.S.B., *Epigraphist to the Government of India for Persian and Arabic Inscriptions, Hyderabad.* Archæological Survey, Hyderabad, Deccan.

ORDINARY MEMBERS.

(Chronological.)

1884.
Nov. 5. Middlemiss, C. S.

1887.
Aug. 25. Criper, W. R.

1888.
June 6. Pennell, A. P.

1889.
Mar. 6. La Touche, T. H. D.

1890.
5 Mar. 5. Ray, Sir Prafulla C.

1892.
Jan. 11. Maclagan, Sir Edward D.
Feb. 1. Bodding, P. O.

1893.
Aug. 31. Tate, G. Passman

1894.
Sept. 27. Vost, W.

1895.
10 Mar. 6. Bose, Sir Jagadis C.
July 3. Beatson-Bell, Sir Nicholas D.
Sept. 19. De, K. C.

1896.
Jan. 8. Burn, Sir Richard

1897.
Dec. 1. Seth, M. J.

1898.
15 Jan. 5. Dods, W. K.
April 6. Tagore, Sir Pradyot C.
May 4. Mookerjee, Sir R. N.

1900.
Dec. 5. Grieve, J. W. A.

1901.
Mar. 6. Habib-ur-Rahman.
20 ,, ,, Vogel, J. P.
June 5. Mann, H. H.
Dec. 4. Ross, Sir Edward D.

1902.
Feb. 5. Shyam Lal.
July 2. Doxey, F.

1904.
25 June 1. Tipper, G. H.
Aug. 3. Fermor, Sir L. L.
,, ,, Stapleton, H. E.

1905.
July 5. Vidyabhusana, A. C.
Aug. 2. McCay, D.

1906.
Jan. 3. Chapman, J. A. 30
Mar. 7. Nahar, P. C.
,, ,, Woolner, A. C.
Sept. 19. Whitehead, R. B.
Oct. 31. Finlow, R. S.

1907.
July 3. Brown, J. C. 35
,, ,, Christie, W. A. K.

1908.
Jan. 1. Brahmachari, Sir U. N.
April 1. Wordsworth, W. C.
Nov. 4. Bhattacharji, B.

1909.
Jan. 6. Shirreff, A. G. 40
April 7. Bentley, C. A.
July 7. Bazaz, R. K.
Oct. 6. Brown, P.
,, ,, Gangoli, O. C.
Nov. 3. Christophers, Sir S. R. 45

1910.
May 4. Dhavle, S. B.
,, ,, Kemp, S. W.
Sept. 7. Gravely, F. H.

1911.
Feb. 1. Insch, J.
,, ,, Law, N. N. 50
Mar. 1. Mahtab, Sir Bijay Chand
May 3. Lomax, C. E.
June 7. Chatterjee, K. K.
,, ,, Hosain, M. H.
July 5. Sewell, R. B. S. 55
Nov. 1. Ahmed, K.

1912.
May 1. Harley, A. H.
June 5. Misra, C.
July 3. Andrews, E. A.
Sept. 4. Ghosh, T. 60
,, ,, Singhi, B. S.

	1913.		
	Mar.	5.	Simonsen, J. L.
	April	2.	Calder, C. C.
	June	4.	Majumdar, R. C.
65	Nov.	5.	Fox, C. S.
	1914.		
	Mar.	4.	Bacot, J.
	April	1.	Chaudhuri, G. D.
	July	1.	Law, S. C.
	Aug.	5.	Law, B. C.
	1915.		
70	April	7.	Ohtani, Count K.
	Aug.	4.	Gurner, C. W.
	Sept.	1.	Cleghorn, M. L. W.
	Oct.	27.	Chatterjee, Sir A. C.
	1916.		
	Feb.	2.	Majumdar, N. K.
75	June	7.	Mahajan, S. P.
	July	5.	Sarkar, G.
	1917.		
	April	4.	Awati, P. R.
	,,	,,	Aiyangar, K. V. R.
	Aug.	1.	Bhandarkar, D. R.
	1918.		
80	Feb.	6.	Banerji, N. N.
	,,	,,	Manen, Johan van
	,,	,,	Singh, B. M.
	April	3.	Prashad, B.
	1919.		
	Feb.	5.	Yazdani, G.
85	Mar.	5.	Gupta, S. P.
	April	2.	Friel, R.
	Nov.	5.	Hemraj, R.
	1920.		
	Mar.	3.	Mahalanobis, P. C.
	,,	,,	Sundara Raj, B.
90	June	2.	Suhrawardy, Sir H.
	,,	,,	Majumdar, N. G.
	July	7.	Knowles, R.
	Aug.	4.	Dikshit, K. N.
	Sept.	1.	Chakladar, H. C.
95	,,	,,	Chanda, R. P.
	,,	,,	Chatterjee, N. C.
	Dec.	,,	Akbar Khan, Sir M.
	1921.		
	Jan.	5.	Ray, J. N.
	Feb.	2.	Jain, Chhote Lall
100	,,	2.	Mukerjee, R. P.
	,,	,,	Mookerjee, S. C.
	Mar.	2.	Agharkar, S. P.
	June	1.	Muzamilullah Khan, Sir Mohammad
	Sept.	7.	Ray, H. C.
105	Nov.	2.	Hora, S. L.
	1922.		
	Feb.	1.	Bhattacharya, V. S.
	,,	,,	Chopra, R. N.
	April	5.	Abdul Ali, A. F. M.
	Sept.	6.	Das-Gupta, S. N.
110	Nov.	1.	Strickland-Anderson, Mrs.
	1923.		
	Mar.	7.	Labey, G. T.
	,,	,,	Stamp, L. D.
	May	2.	Shebbeare, E. O.
	June	6.	Howard, Sir A.
115	,,	,,	Hutton, J. H.
	Aug.	1.	Biswas, K. P.
	Dec.	5.	Chopra, B. N.
	,,	,,	Barwell, N. F.
	,,	,,	Sen, H. H. Lakshman
120	,,	,,	Pande, S. B.
	1924.		
	Feb.	6.	Mahindra, K. C.
	Mar.	5.	Banerjee, P. N.
	,,	,,	Kanjilal M. N.
	,,	,,	Mitter, Sir B. L.
125	,,	,,	Mitter, D. N.
	,,	,,	McPherson, J.
	,,	,,	Sircar, Sir N. N.
	,,	,,	Sircar, Sir N. R.
	April	2.	Bahl, K. N.
130	,,	,,	Ghose, K.
	,,	,,	Richards, F. J.
	,,	,,	Haq, M. M.
	,,	,,	Mitra, J. C.
	May	7.	Bhattacharya, B.
135	July	2.	Ray, A. C.
	,,	,,	Mookerjee, S. P.
	Aug.	6.	Chatterji, S. K.
	,,	,,	Moloney, W. J.
	,,	,,	Roy-Chowdhury, B. K.
140	,,	,,	Davies, L. M.
	Nov.	5.	Chattopadhyay, K. P.
	,,	,,	Sahni, B.
	,,	,,	Mookerji, B. N.
	Dec.	3.	Das, S. N.
145	,,	,,	Newman, Chas. F.
	,,	,,	Pushong, E. S.
	,,	,,	Rogers, T. E.
	,,	,,	Basu, J. N.
	,,	,,	Ghose, S. C.
150	,,	,,	Sarkar, C. K.
	,,	,,	Roerich, G. N.
	,,	,,	Sen, H. K.
	,,	,,	Khan, R. R.

1925.

	Feb.	4.	Guha, B. S.
155	Mar.	4.	Benthall, Sir E. C.
	,,	,,	Das, A. N.
	April	1.	Perier, F.
	,,	,,	Hobbs, H.
	,,	,,	Sen, B. C.
160	May	6.	Jatia, Sir O. M.
	,,	,,	Khanna, V. L.
	,,	,,	Koester, Hans
	,,	,,	Staub, Max.
	,,	,,	Wadia, D. N.
165	June	3.	Datta, S. K.
	July	6.	Bose, M. M.
	Aug.	3.	Pruthi, H. S.
	Nov.	2.	Acharya, P.
	,,	,,	Chattopādhyāya, K. C.
170	,,	,,	Crookshank, H.
	,,	,,	Kimura, R.
	,,	,,	Sharif, M.

1926.

	Jan.	4.	Fleming, Andrew
	,,	,,	Shortt, H. E.
175	,,	,,	Sinton, J. A.
	,,	,,	Stapleton, G. (Miss)
	Feb.	1.	Rao, Y. R.
	,,	,,	Ghuznavi, Sir A. K.
	,,	,,	Hingston, H.
180	,,	,,	Harris, H. G.
	,,	,,	Ghuznavi, A. H.
	Mar.	1.	McKay, J. W.
	,,	,,	Datta, H. N.
	,,	,,	Basu, N. K.
185	,,	,,	Kramrisch, Stella
	,,	,,	Bagnall, J. F.
	April	5.	Senior-White, R.
	,,	,,	Ghose, B. C.
	,,	,,	Parker, R. H.
190	,,	,,	Bhatia, M. L.
	,,	,,	Mitter, K. N.
	,,	,,	Jones, T.
	June	7.	Lemmon, R. D.
	July	5.	Mukhopadhyaya, P. K.
195	,,	,,	Tyson, J. D.
	,,	,,	Lyne, H. W.
	Aug.	2.	Mukherjee, J. N.
	,,	,,	Khettry, B.
	Nov.	1.	Jameson, T. B.
200	,,	,,	Modi, J. R. K.
	,,	,,	Westcott, F.
	,,	,,	Barhut, T. K.
	,,	,,	Mills, J. P.
	,,	,,	Galstaun, S.
205	,,	,,	Chokhani, S.
	,,	,,	Bagchi, P. C.
	Dec.	6.	Aiyangar, S. K.
	,,	,,	Guha, S. N.
	,,	,,	Roy, A. K.

1927.

Jan.	3.	Chakravarty, N.	210
,,	,,	Bivar, H. G. S.	
Feb.	7.	Chatterjee, A.	
,,	,,	Captain, D. M.	
Mar.	7.	Hopkinson, A. J.	
,,	,,	Urquhart, W. S.	215
,,	,,	Bake, A. A.	
,,	,,	Stagg, M.	
,,	,,	Ghosh, P. N.	
,,	,,	Abdul Kadir, A. F. M.	
,,	,,	Fukushima, N.	220
,,	,,	Wright, F. M.	
May	2.	Watson, Sir A. H.	
June	6.	Nandi, Maharaja S. C.	
,,	,,	Jain, B.	
,,	,,	Sinha, S. P.	225
July	4.	Chatterjee, P. P.	
,,	,,	Chakravarti, C.	
,,	,,	Vance, R. L.	
Nov.	7.	Tarkatirtha, B.	
,,	,,	Mukherji, D.	230
,,	,,	Brahmachary, S. C.	
Dec.	5.	Namgyal, H.H. Sir Tashi	
,,	,,	Dechhen, H.H. Kunzang	
,,	,,	Chowdhury, Sir C.	
,,	,,	Mukerjee, S. K.	235

1928.

Jan.	2.	Basu, N. M.	
,,	,,	Mello, F. de	
Feb.	6.	Sinha, S. C.	
,,	,,	Ezra, Sir D.	
,,	,,	Reneman, Nico	240
,,	,,	Mukerji, Sir M. N.	
,,	,,	Williams, T. T.	
,,	,,	Shumsher, Sir Kaiser	
Mar.	5.	Waight, H. G.	
,,	,,	Gooptu, D. N.	245
,,	,,	Neogi, P.	
,,	,,	Biswas, C. C.	
,,	,,	Eberl, Otto	
April	2.	Mullick, K. C.	
,,	,,	Bhattacharyya, N. C.	250
,,	,,	Kumar, K. K.	
,,	,,	Chowdhury, Rai J. N.	
,,	,,	Harris, L. E.	
May	7.	Chatterji, K. N.	
,,	,,	Chatterjea, Sir N. R.	255
,,	,,	Tucci, G.	
,,	,,	Murray, E. F. O.	
,,	,,	Gupta, J. N.	
,,	,,	Ghosal, U. N.	
,,	,,	Mallik, S. C.	260
,,	,,	Lord Sinha of Raipur	
,,	,,	Saha, M. N.	
June	4.	Bhadra, S. N.	
,,	,,	Hobart, R. C.	

265	June	4.	Bhattasali, N. K.
	July	2.	Roerich, N.
	Aug.	6.	Jaitly, P. L.
	,,	,,	Urchs, O.
	,,	,,	Ghuznavi, I. S. K.
270	,,	,,	Heron, A. M.
	Nov.	5.	Olpadvala, E. S.
	,,	,,	Choprha, G.
	,,	,,	Statham, R. M.
	,,	,,	Reinhart, W.
275	,,	,,	Galstaun, J. C.
1929.			
	Jan.	7.	Basu, S. C.
	,,	,,	Ghose, M. C.
	Feb.	4.	Narain, Hirde
	,,	,,	Jenkins, W. A.
280	Mar.	4.	Travers, Sir W. L.
	,,	,,	Mitter, H. K.
	,,	,,	De, J. C.
	,,	,,	Basu, B. K.
	,,	,,	Mullick, P. N.
285	April	1.	Ghose, D. P.
	,,	,,	Rizvi, S. H. H.
	,,	,,	Sen-Gupta, N. C.
	May	6.	Sharma, S. R.
	,,	,,	Williams, H. F. F.
290	,,	,,	Pawsey, C. R.
	July	1.	Dunn, J. A.
	Aug.	5.	Sommerfeld, A.
	Nov.	4.	Singh, J.
	,,	,,	Cotter, G. de P.
295	,,	,,	Campbell, G. R.
	,,	,,	Parry, N. E.
	,,	,,	Jarvis, R. Y.
	,,	,,	Edwards, L. B.
	,,	,,	Siddiqi, M. Z.
300	,,	,,	Mallya, B. G.
	Dec.	2.	Khan, M. R.
	,,	,,	Fawcus, L. R.
	,,	,,	Thomas, H. W.
1930.			
	Jan.	6.	Jain, N. K.
305	,,	,,	Haldar, S. K.
	,,	,,	Bassewitz, Count
	,,	,,	Hamilton, Sir D. M.
	,,	,,	Martin, M. F. C.
	,,	,,	Chakraverti, S. C.
310	Feb.	3.	Henderson, A. G.
	,,	,,	Mahtab, U. C.
	,,	,,	Korni, M. A.
	,,	,,	Pettigrew, W.
	,,	,,	Chakravarti, M. N.
315	Mar.	3.	Mukharji, I. C.
	,,	,,	Ashton, H. S.
	April	7.	Pessein, J. F.
	May	5.	Deo, Sir P. C. Bhanj
	,,	,,	Matthias, O. G.
320	,,	,,	Mallam, G. L.

May	5.	Cooper, G. A. P.	
June	2.	Kenny, D. E. C.	
Nov.	3.	Austin, G. J.	
,,	,,	Rahman, S. K.	
,,	,,	Newman, C. D.	325
Dec.	1.	Roy, K. K.	
1931.			
Jan.	5.	Shukla, J. P.	
,,	,,	Chatterji, D.	
,,	,,	Evans, P.	
Feb.	2.	Wauchope, R. S.	330
,,	,,	Douglas, G. W.	
,,	,,	Clough, J.	
Mar.	2.	Bose, S. K.	
April	6.	Bhose, J. C.	
,,	,,	Prasad, S.	335
May	4.	Bottomley, J. M.	
June	1.	Lort-Williams, J.	
Aug.	3.	Barua, K. L.	
1932.			
Feb.	1.	Holme, J. W.	
,,	,,	Visser, Ph. C.	340
Mar.	7.	Hughes, A.	
,,	,,	Chakraborty, K. B.	
,,	,,	Darbari, M. D.	
May	2.	Thakur, A.	
,,	,,	Muhammad, M.	345
June	6.	Vere-Hodge, Mrs. E. H.	
Nov.	7.	Suvarna Shumser	
,,	,,	Driver, D. C.	
,,	,,	Sitling, G. T.	
Dec.	5.	Dutt, N.	350
,,	,,	Boyle, C. A.	
,,	,,	Deb, S. K.	
1933.			
Jan.	2.	George, J.	
,,	,,	Dutch, R. A.	
,,	,,	Singh, R. P.	355
Feb.	6.	Wellsted, T. A.	
,,	,,	Ghatak, J. C.	
,,	,,	West, W. D.	
Mar.	6.	Seal, S. C.	
June	5.	Morris, C. J.	360
,,	,,	Chakravarti, S. K.	
,,	,,	Rossetti, F. F. L.	
July	3.	Dutt, G. S.	
Aug.	7.	Sinh, Raghubir	
,,	,,	Vedantatirtha, V.	365
Nov.	6.	Kavyatirtha, R. D.	
,,	,,	Krishnan, M. S.	
,,	,,	Coulson, A. L.	
1934.			
Jan.	1.	Ahmad, M. J.	
Feb.	5.	Bates, W. H.	370
,,	,,	Bhuyan, S. K.	

Feb. 5. Haldar, B. V.
,, ,, Kirby, W.
,, ,, Law, B. C.
375 ,, ,, Nariman, R. K.
,, ,, Pasricha, C. L.
,, ,, Percival, F. G.
,, ,, Richter, H.
,, ,, Sale, H. M.
380 ,, ,, Selzam, E. von
Mar. 5. Craddock, Sir W. M.
,, ,, Modi, J. J. J.
,, ,, Singh, H.H. Sir K.
May 7. Bent, W. A.
385 ,, ,, Duncan, P. C.
June 4. Chatterji, B. R.
,, ,, Daver, N. S.
Aug. 6. Husain, S. A.
,, ,, Mullick, M. L.
390 ,, ,, Rao, U. S.
Sep. 3. Auden, J. B.
,, ,, Krishnan, K. S.
,, ,, Ledrus, M.
,, ,, Ow-Wachendorf, Baron W.
395 ,, ,, Sondhi, V. P.
,, ,, Ulser, M. E. M. M.
,, ,, Couchman, H. J.
Nov. 5. Gee, E. R.
,, ,, Hosain, Prince A. M. M. M. A.
Nov. 5. Dey, M. 400
Dec. 3. Burt, B. C.
,, ,, Gladstone, J.
,, ,, Wilson, H. E. C.
,, ,, Brahmachari, P. N.
,, ,, Chatterjee, S. C. 405
,, ,, Kapur, C. L.

1935.

Feb. 4. Cookson, C. A.
,, ,, Singh, S.
,, ,, Sayeeduddin, M.
,, ,, Sarkar, N. R. 410
,, ,, Law, P. C.
,, ,, Lal, R. B.
,, ,, Jaffar, S. M.
Mar. 4. Roy, S. Singh.
,, ,, Jack, Hon. Justice R. E. 415
,, ,, Groth, E. M.
June 3. Singhania, R. P.
Aug. 5. Shattock, J. S. H
Sep. 30. Dutt, M. N.
,, ,, Basu, S. K. 420
,, ,, Mitter, S. K.
,, ,, Howland, F.
Nov. 4. Bor, N. L.
,, ,, Anina Klebe.
,, ,, Hirtzel, M. A. F. 425

LIFE MEMBERS.

(*Chronological.*)

	5-11-84	C. S. Middlemiss (30 N.).
	6- 6-88	A. P. Pennell (88 F.).
	6- 3-89	T. H. D. La Touche (10 N.).
	11- 1-93	Sir Edward D. Maclagan (94 R.).
5	1- 2-93	P. O. Bodding (14 N.).
	31- 7-93	G. P. Tate (23 N.).
	27- 9-94	W. Vost (94 F.).
	3- 7-95	Sir Nicholas D. Beatson-Bell (95 N.).
	19- 9-95	K. C. De (26 R.).
10	3- 5-98	Sir R. N. Mookerjee (29 R.).
	5-12-00	J. W. A. Grieve (00 F.).
	6- 2-01	J. Ph. Vogel (25 F.).
	2- 7-02	F. Doxey (28 R.).
	1- 6-04	G. H. Tipper (27 N.).
15	28- 9-04	H. E. Stapleton (26 R.).
	2- 8-05	D. McCay (29 F.).
	3- 1-06	J. A. Chapman (28 N.).
	7- 3-06	A. C. Woolner (28 N.).
	19- 7-06	R. B. Whitehead (26 N.).
20	3- 7-07	J. Coggin Brown (28 N.).
	3- 7-07	W. A. K. Christie (29 N.).
	1- 1-08	Sir U. N. Brahmachari (27 R.).
	7- 4-09	C. A. Bentley (30 N.).
	4- 5-10	S. B. Dhavle (10 N.).
25	4- 5-10	S. W. Kemp (29 F.).
	1- 2-11	James Insch (28 R.).
	7- 6-11	M. Hidayat Hosain (27 N.).
	5- 7-11	R. B. S. Sewell (28 N.).
	1-11-11	Kamaluddin Ahmad (24 N.).
30	5- 3-13	J. L. Simonsen (19 N.).
	4- 3-14	J. Bacot (14 F.).
	5- 8-14	B. C. Law (33 R.).
	5- 7-16	G. Sircar (29 N.).
	6- 2-18	Johan van Manen (25 R.).
35	3- 4-18	B. Prashad (29 R.).
	2-11-21	S. L. Hora (30 N.).
	6- 6-23	Sir A. Howard (30 N.).
	5-12-23	H.H. Lakshman Sen (24 N.).
	7- 5-24	B. Bhattacharya (24 N.).
40	6- 8-24	L. M. Davies (24 N.).
	3-12-24	G. Roerich (28 F.).
	6- 6-27	B. D. Jain (28 R.).
	5-12-27	Sir Chhajuram Chowdhury (27 R.).
	5-12-27	H.H. Sir Tashi Namgyal (27 N.).
45	5-12-27	H.H. Kunzang Dechhen (27 N.).
	6- 2-28	Sir D. Ezra (28 R.).
	6- 2-28	Sir Kaiser Shumsher Jung Bahadur Rana (28 N.).
	2- 7-28	N. Roerich (28 F.).
	5-11-28	W. Reinhart (28 F.).
50	4-11-29	G. de P. Cotter (32 N.).
	3- 3-30	H. S. Ashton (30 N.).
	5- 1-31	P. Evans (31 N.).
	7-11-32	Suvarna Shumser Jung Bahadur Rana (32 N.).
	6- 2-33	J. C. Ghatak (33 R.).
55	5- 2-34	H. M. Sale (34 N.).
	5- 3-34	H.H. Sir K. Singh (34 N.).

SPECIAL ANNIVERSARY HONORARY MEMBERS.

Date of Election.	(*Science.*)
15-1-34	Baron Ernest Rutherford of Nelson, o.m., President, Royal Society, London.
15-1-34	Prof. Albert Einstein, c/o Princeton University, New Jersey, U.S.A.
15-1-34	M. A. Lacroix, Secretaire Perpetual, Academie des Sciences, Paris.
15-1-34	Sir Sydney Burrard, k.c.s.i., f.r.s., Foxhill, Salisbury Road, Farnborough, Hants, England.
15-1-34	Dr. Sir Sven Hedin, Stockholm, Sweden.

(*Letters.*)

15-1-34	Sir John Marshall, kt., c/o Messrs. Grindlay & Co., Ltd., 54, Parliament Street, London.
15-1-34	Dr. Rabindra Nath Tagore, Santiniketan, Bolpur, Birbhum.
15-1-34	Prof. Taha Hosain, Cairo.
15-1-34	Prof. Arthur Christensen, 62, Raadhusvej, Charlottenlund, Denmark.
15-1-34	Dr. J. Van Kan, President, Royal Society of Arts and Letters, Batavia, Java.
15-1-34	H.R.H. Prince Damrong Rajanubhab of Siam, Siam.

ASSOCIATE MEMBERS.

Date of Election.	
1-2-22	*Pierre Johanns, Rev., s.j., b.litt. (Oxon.), *Professor of Philosophy.* St. Xavier's College, 30, Park Street, Calcutta.
1-2-22	*Anantakrishna Sastri, Mahamahopadhyaya, Vedanta-visarada, *Lecturer in Sanskrit, Calcutta University.* 32, College Square, Calcutta.
2-5-27	*N. N. Vasu, Rai Sahib. 20, Visvakosh Lane, Baghbazar, Calcutta.
2-12-29	†Sarat Chandra Roy, Rai Bahadur, m.a., b.l., *Editor, 'Man in India'.* Church Road, Ranchi.
1-1-34	L. Bogdanov. Flat 8-B, Solomon Mansions, 7, Royd Street, Calcutta.

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* Re-elected for a further period of five years on 7-3-1932 under Rule 2c.

† Re-elected for a further period of five years on 1-1-1934 under Rule 2c.

INSTITUTIONAL MEMBERS

	Date of Election.	
	28-10-29	The Legatum Warnerianum (Oriental Department), University of Leyden, Leyden, Holland
	2-12-29	The Adyar Library, Adyar, Madras S.
	4-5-31	The Benares Hindu University Library, Benares.
	1-6-31	The Ohtani University Library, Kyoto, Japan.
5	7-12-31	The Annamalai University Library, Annamalainagar, Chidambaram, S. India.
	30-10-33	The Allahabad University Library, Allahabad.
	30-4-34	The Bombay University Library, Bombay.

ORDINARY FELLOWS

	Date of Election.	
	2-2-10	T. H. D. La Touche, B.A., F.G.S.
	2-2-10	Sir Prafulla Chandra Ray, KT., C.I.E., M.A., D.SC.
	2-2-10	Sir E. D. Ross, KT., C.I.E., PH.D.
	7-2-12	Sir J. C. Bose, KT., C.S.I., C.I.E., M.A., D.SC., F.R.S.
5	7-2-12	Sir Samuel R. Christophers, KT., C.I.E., O.B.E., I.M.S., F.R.S.
	7-2-12	C. S. Middlemiss, C.I.E., B.A., F.G.S., F.R.S.
	5-2-13	J. Ph. Vogel, PH.D., LITT.D.
	5-2-13	S. W. Kemp, B.A., D.SC., F.R.S.
	3-2-15	G. H. Tipper, M.A., F.G.S., M.INST.M.M.
10	2-2-16	Sir Richard Burn, KT., C.S.I., I.C.S. (*retd.*).
	2-2-16	Sir L. L. Fermor, KT., O.B.E., A.R.S.M., D.SC., F.G.S., M.INST.M.M., F.R.S.
	7-2-17	F. H. Gravely, D.SC.
	6-2-18	J. L. Simonsen, D.SC., F.I.C., F.R.S.
	6-2-18	D. McCay, M.D., M.R.C.P., I.M.S.
15	5-2-19	J. Coggin Brown, O.B.E., M.I.M.E., F.G.S.
	5-2-19	W. A. K. Christie, B.SC., PH.D., M.INST.M.M.
	5-2-19	D. R. Bhandarkar, M.A., PH.D.
	5-2-19	R. B. Seymour Sewell, C.I.E., M.A., SC.D., M.R.C.S., L.R.C.P., F.L.S., F.Z.S., F.R.S., I.M.S.
	2-2-21	Sir U. N. Brahmachari, KT., M.A., PH.D., M.D., F.S.M.F.
20	1-2-22	Ramaprasad Chanda, B.A.
	4-2-25	M. Hidayat Hosain, PH.D.
	1-2-26	P. O. Bodding, M.A.
	7-2-27	R. Knowles, C.I.E., B.A., M.R.C.S., L.R.C.P., I.M.S.
	7-2-27	Johan van Manen, C.I.E.
25	7-2-27	B. Sahni, M.A., SC.D., D.SC., F.G.S.
	7-2-27	A. C. Woolner, C.I.E., M.A., D.LITT.
	6-2-28	H. E. Stapleton, M.A., B.SC., I.E.S. (*retd.*).
	6-2-28	B. Prashad, D.SC., F.Z.S., F.R.S.E.
	6-2-28	C. A. Bentley, C.I.E., M.B., D.P.H., D.T.M. & H.
	4-2-29	Sir Albert Howard, KT., C.I.E., M.A.
30	4-2-29	J. H. Hutton, C.I.E., M.A., D.SC., I.C.S.
	4-2-29	Sir Edward D. Maclagan, K.C.S.I., K.C.I.E.
	3-2-30	G. de P. Cotter, B.A., SC.D., M.INST.M.M., F.G.S.
	3-2-30	S. L. Hora, D.SC., F.Z.S., F.R.S.E.
35	3-2-30	J. P. Mills, I.C.S., M.A., J.P.

Date of Election		
3-2-30	Meghnad Saha, D.SC., F.R.S.	
2-2-31	S. Krishnaswami Aiyangar, M.A., PH.D., F.R.HIST.S.	
2-2-31	R. N. Chopra, C.I.E., M.A., M.B., I.M.S.	
2-2-31	R. B. Whitehead, I.C.S. (*retired*).	
1-2-32	J. Bacot.	40
6-2-33	Percy Brown, A.R.C.A.	
6-2-33	Ordhendra Coomar Gangoly, B.A.	
6-2-33	Ghulam Yazdani, M.A.	
5-2-34	D. N. Wadia, M.A., B.SC., F.R.G.S.	

HONORARY FELLOWS

Date of Election		
5-2-96	Charles Rockwell Lanman. 9, Farrar Street, Cambridge, Massachusetts, U.S.A.	
2-3-04	Sir George Abraham Grierson, K.C.I.E., O.M., PH.D., D.LITT., LL.D., F.B.A., I.C.S. (*retired*). Rathfarnham, Camberley, Surrey, England.	
6-9-11	Kamakhyanath Tarkavagisa, Mahamahopadhyaya. 23/1B, Ganen Mitter Lane, P.O. Shambazar, Calcutta.	
5-8-15	Sir Joseph John Thomson, KT., O.M., M.A., SC.D., D.SC., LL.D., PH.D., F.R.S. Trinity College, Cambridge, England.	
6-12-16	G. A. Boulenger, F.R.S., LL.D. Jardin Botanique de L'Etat, Brussels.	5
4-2-20	Sir Aurel Stein, K.C.I.E., PH.D., D.LITT., D.SC., D.O.L., F.B.A. c/o Indian Institute, Oxford, England.	
4-2-20	A. Foucher, D.LITT. Boulevard Raspail 286, Paris, XVI^e^.	
4-2-20	Sir Arthur Keith, M.D., F.R.C.S., LL.D., F.R.S. Royal College of Surgeons of England, Lincoln's Inn Fields, London, W.C. 2.	
4-2-20	R. D. Oldham, F.R.S., F.G.S., F.R.G.S. 1, Broomfield Road, Kew, Surrey, England.	
4-2-20	Sir David Prain, KT., C.M.G., C.I.E., M.A., M.B., LL.D., F.R.S.E., F.L.S., F.R.S., F.Z.S., M.R.I.A. Royal Botanic Gardens, Kew, Surrey, England.	10
4-2-20	Sir Joseph Larmor, KT., M.P., M.A., D.SC., LL.D., D.C.L., F.R.S., F.R.A.S. St. John's College, Cambridge, England.	
4-2-20	Sir James Frazer, KT., D.C.L., LL.D., LITT.D. Trinity College, Cambridge.	
4-2-20	J. Takakusu. Imperial University of Tokyo, Tokyo, Japan.	
2-3-21	F. W. Thomas, C.I.E., M.A., PH.D., *Boden Professor of Sanskrit, University of Oxford.* 161, Woodstock Road, Oxford, England.	
7-6-22	Sir Thomas Holland, K.C.S.I., K.C.I.E., D.SC., F.R.S. *Principal,* University of Edinburgh, Blackford Brae, Edinburgh.	15
7-6-22	Sir Leonard Rogers, KT., C.I.E., M.D., B.S., F.R.C.P., F.R.S., I.M.S. 24, Cavendish Square, London, 4.	
7-1-25	Sten Konow. Ethnographisk Museum, Oslo, Norway.	
7-3-27	Rt. Hon'ble The Earl of Lytton, P.C., G.C.S.I., G.C.I.E. Knebworth, Herts, England.	
4-7-27	C. Snouck Hurgronje. Rapenburg 61, Leiden, Holland.	
5-12-27	Lt.-Col. Sir T. Wolseley Haig, K.C.I.E., C.S.I., C.B.E., M.A., C.M.G. 34, Gledstanes Road, West Kensington, London, W. 14.	20

Date of Election.	
2-12-29	SIR RAJENDRA NATH MOOKERJEE, K.C.I.E., K.C.V.O. 7, Harington Street, Calcutta.
2-12-29	DR. CHARLES J. H. NICOLLE, *Director.* Pasteur Institute, Tunis.
5-5-30	DR. R. ROBINSON, D.SC., F.R.S. The Dyson Perrins Laboratory, South Parks Road, Oxford, England.
5-5-30	DR. H. JACOBI, C.I.E. (HON.). 59, Niebuhrstrasse, Bonn, Germany.

CHANGES IN MEMBERSHIP.

LIST OF MEMBERS WHO HAVE BEEN ABSENT FROM INDIA THREE YEARS AND UPWARDS.*

1. Count Bassewitz. (1930.)
2. Andrew Fleming. (1926.)
3. R. Friel. (1919.)
4. R. Y. Jarvis. (1929.)
5. Thornton Jones. (1926.)
6. Hans Koester. (1925.)
7. C. E. Lomax. (1911.)

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* Rule 40.—After the lapse of three years from the date of a member leaving India, if no intimation of his wishes shall, in the interval, have been received by the Society, his name shall be removed from the List of Members.

The following members will be removed from the next Member List of the Society under the operation of the above rule :—

LOSS OF MEMBERS DURING 1935.

BY RETIREMENT.

Ordinary Members.

1. Syed Khalil Ahmad. (1930.)
2. Sivapada Bhattacharya. (1922.)
3. Nilmani Chakravarti. (1909.)
4. Sir J. C. Coyajee. (1925.)
5. Rev. E. C. Dewick. (1927.)
6. F. B. Fisher. (1929.)
7. H. A. Fooks. (1931.)
8. Miss Gerta Hertz. (1933.)
9. Otto Hubert. (1926.)
10. P. S. Jackson. (1923.)
11. R. B. Khambata. (1926.)
12. M. N. Mitra. (1929.)
13. Bhabadev Mukherjee. (1928.)
14. Aditya Nath Mukherjee. (1926.)
15. Saradindu Mukherjee. (1924.)
16. Karmajogin Ray. (1934.)
17. Sir C. V. Raman. (1922.)
18. Sir D. P. Sarbadhikari. (1909.)
19. A. T. Weston. (1934.)
20. B. C. Hobbs. (1935.)
21. G. F. Berthoud. (1929.)
22. J. F. Snaith. (1926.)
23. N. J. Judah. (1924.)

BY DEATH.

Ordinary Members.

1. H. W. Acton. (1921.)
2. A. Ghaffar. (1926.)
3. A. G. Lunan. (1929.)
4. J. N. Maitra. (1918.)
5. L. N. Rai. (1928.)
6. V. N. Vasu. (1934.)
7. F. Williamson. (1934.)
8. Ganesh Prashad. (1935.)
9. P. J. Brühl. (1909.)
10. Narendranath Basu. (1928.)

Special Anniversary Honorary Member.

1. Henry Fairfield Osborn. (1934.)

Honorary Fellows.

1. H. A. Giles. (1917.)
2. Sylvain Levi. (1920.)

Associate Member.

1. H. Hosten, S.J. (1910.)

UNDER RULE 38.

1. G. N. Bose Mullik. (1928.)
2. D. L. Clendenin. (1932.)
3. P. K. Das. (1928.)
4. Raja K. Deb. (1925.)
5. M. Eliade. (1931.)
6. G. S. Kewal. (1928.)
7. S. W. Laden La. (1925.)
8. J. J. Mahudavala. (1930.)
9. P. V. Ramanujaswami. (1926.)
10. Suhrid Kumar Roy. (1928.)

MEDALLISTS.

ELLIOTT GOLD MEDAL AND CASH.

RECIPIENTS.

1893	Chandra Kanta Basu.
1895	Yati Bhusana Bhaduri.
1896	Jnan Saran Chakravarti.
1897	Sarasi Lal Sarkar.
1901	Sarasi Lal Sarkar.
1904	Sarasi Lal Sarkar.
	Surendra Nath Maitra.
1907	Akshoy Kumar Mazumdar.
1911	Jitendra Nath Rakshit.
	Jatindra Mohan Datta.
1913	Rasik Lal Datta.
	Saradakanta Ganguly.
	Nagendra Chandra Nag.
	Nilratan Dhar.
1918	Bibhutibhushan Dutta.
1919	Jnanendra Chandra Ghosh.
1922	Abani Bhusan Datta.
1923	Bhailal M. Amin.
1926	Bidhu Bhusan Ray.
1927	Kalipada Biswas.
1931	T. C. N. Singh.
1932	P. N. Das-Gupta.
1933	Nirmal Kumar Sen.
1934	D. P. Roy Chowdhury.
1935	Kalipada Biswas.

BARCLAY MEMORIAL MEDAL.

RECIPIENTS.

1901	E. Ernest Green.
1903	Sir Ronald Ross, KT., K.C.B., C.I.E., K.C.M.G., M.R.C S., F.R.C.S., D.P.H., LL.D., D.SC., M.D., F.R.S.
1905	D. D. Cunningham, C.I.E., F.R.S.
1907	A. W. Alcock, C.I.E., M.B., LL.D., F.R.S.
1909	Sir David Prain, KT., C.I.E., C.M.G., M A., M.B., LL.D., F.R.S.E., F.L.S., F.Z.S., M.R.I.A., F.R.S.
1911	Carl Diener.
1913	William Glen Liston, C.I.E., M.D., D.P.H.
1915	J. S. Gamble, C.I.E., M.A., F.R.S.
1917	H. H. Godwin-Austen, F.R.S., F.Z.S., F.R.G.S.
1919	N. Annandale, C.I.E., D.SC., C.M.Z.S., F.L.S., F.R.S., F.A.S.B.
1921	Sir Leonard Rogers, KT., C.I.E., M.D., B.S., F.R.C.P., F.R.C.S., F.R.S.
1923	Sir Samuel Christophers, KT., C.I.E., O.B.E., F.R.S., F.A.S.B., M.B., LT.-COL., I.M.S.
1925	J. Stephenson, C.I.E., B.SC., M.B., CH.B., F.R.S., F.R.C.S., F.R.S.E., LT.-COL., I.M.S.
1927	S. W. Kemp, B.A., D.SC., F.R.S., F.A.S.B.
1929	Sir Albert Howard, KT., C.I.E., M.A., F.A.S.B.

1931 R. B. Seymour Sewell, C.I.E., M.A., SC.D. (CANTAB.), M.R.C.S., L.R.C.P., F.Z.S., F.L.S., F.A.S.B., F.R.S., LT.-COL., I.M.S.
1933 R. Row, O.B.E., D.SC.
1935 B. Sahni, M.A., SC.D. (CANTAB.), D.SC., F.G.S., F.A.S.B.

SIR WILLIAM JONES MEMORIAL MEDAL.

RECIPIENTS.

1927 Sir Malcolm Watson, KT., LL.D. (HON.), M.D., C.M., D.P.H.
1928 Sir George A. Grierson, K.C.I.E., O.M., PH.D., D.LITT., LL.D., F.B.A., HON. F.A.S.B., I.C.S. (*retired*).
1930 Dr. Felix H. D'Herelle.
1932 Dr. C. Snouck Hurgronje.
1934 Rai Sir Upendra Nath Brahmachari, Bahadur, KT., M.A., M.D., PH.D., F.S.M.F., F.A.S.B.

ANNANDALE MEMORIAL MEDAL.

RECIPIENTS.

1927 Fritz Sarasin.
1930 Dr. Charles Gabriel Seligman, M.D., F.R.C.P., F.R.S.
1933 Dr. Eugène Dubois

JOY GOBIND LAW MEMORIAL MEDAL.

RECIPIENTS.

1929 Max Weber.
1932 Dr. Ernst J. O. Hartert, PH.D.
1935 Prof. Leo Semenowitch Berg.

PAUL JOHANNES BRÜHL MEMORIAL MEDAL.

RECIPIENTS.

1931 Rev. Ethelbert Blatter, S.J.
1934 Isaac Henry Burkill, M.A.

INDIAN SCIENCE CONGRESS MEDAL, CALCUTTA.

RECIPIENT.

1935 Meghnad Saha, D.SC., F.R.S., F.A.S.B.

PROCEEDINGS OF THE ORDINARY MONTHLY MEETINGS, 1935.

JANUARY, 1935.

No Meeting.

◆

FEBRUARY, 1935.

An Ordinary Monthly Meeting of the Asiatic Society of Bengal was held on Monday, the 4th, immediately after the termination of the Annual Meeting.

PRESENT.

L. L. FERMOR, ESQ., O.B.E., A.R.S.M., D.SC., F.G.S., M.INST.M.M., F.R.S., F.A.S.B., President, in the Chair.

Members :

Brahmachari, Sir U. N.
Brown, Mr. Percy
Calder, Mr. C. C.
Chakravarti, Mr. C.
Chatterjee, Mr. P. P.
Chatterjee, Dr. S. K.
Dikshit, Mr. K. N.
Hobbs, Mr. H.
Holme, Mr. J. W.
Hora, Dr. S. L.
Hosain, Dr. M. Hidayat
Jenkins, Dr. W. A.
Manen, Mr. Johan van
Mitter, Sir B. L.
Mukherjee, Dr. J. N.

The minutes of the last meeting were read and confirmed.

The General Secretary announced that the presentations of books, etc., received during the last month, would be exhibited in the next Monthly Meeting.

The following candidates were balloted for for election as Ordinary Members :—

(1) *Lal, Ram Bihari*, M.B., B.S., D.P.H., D.T.M. & H., D.B., Professor of Vital Statistics and Epidemiology, All-India Institute of Hygiene and Public Health, 21, Chittaranjan Avenue, Calcutta.

Proposer : R. N. Chopra.
Seconder : S. L. Hora.

(2) *Hobbs, Bertram Carmichael*, Solicitor, c/o. Sanderson and Morgans, 26, Dalhousie Square, Calcutta.

Proposer : Johan van Manen.
Seconder : Ramaprasad Chanda.

(3) *Law, Parbutty Churn*, 223, Cornwallis Street, Calcutta.

Proposer : Bhabani Churn Law.
Seconder : Johan van Manen.

(4) *Sayceduddin, Mohammed*, B.Sc., M.A. (Edin.), F.R.M.S., F.F.Sc., Professor of Botany, Osmania University, Hyderabad, Deccan.

Proposer : S. L. Hora.
Seconder : H. S. Pruthi.

(5) *Vijayaraghavacharya, Sir T.*, Diwan Bahadur, K.B.E., Vice-Chairman, Imperial Council of Agricultural Research, Secretariat, New Delhi.

Proposer : S. L. Hora.
Seconder : Johan van Manen.

(6) *Prasad, Ganesh*, M.A., D.Sc., Hardinge Professor of Higher Mathematics, Calcutta University, 2, Samavaya Mansions, Corporation Street, Calcutta.

Proposer : J. N. Mukherjee.
Seconder : L. L. Fermor.

(7) *Jaffar, S. M.*, B.A., Author, Translator to the Judicial Commissioner, North-West Frontier Province, 1508, Khudadad Street, Peshawar City, N.W.-F.P.

Proposer : M. Hidayat Hosain.
Seconder : K. N. Dikshit.

(8) *Cookson, Christopher Arthur*, Assistant, Bombay Co., Ltd., 19, British Indian Street, Calcutta.

Proposer : Johan van Manen.
Seconder : Percy Brown.

(9) *Singh, Jagatjit*, His Highness Maharaja Bahadur, G.C.S.I., G.C.I.E., G.B.E., Colonel Farzand-i-Dilband Rasikhul-i-Itikad, Daulat-i Inglishia Raja-i-Rajgan, Maharaja of Kapurthala, Kapurthala State, Punjab.

Proposer : Johan van Manen.
Seconder : Sir U. N. Brahmachari.

(10) *Sarkar, Nalini Rañjan*, Mayor of Calcutta, Hindusthan Buildings, Corporation Street, Calcutta.

Proposer : Johan van Manen.
Seconder : Sir U. N. Brahmachari.

(11) *Singh, Sarabjit*, M.A., B.L., P.O. Imphal, Manipur State.

Proposer : S. L. Hora.
Seconder : R. N. Chopra.

The General Secretary reported the following loss of membership, since the previous meeting, by death :—

(7) Rai Bahadur Shiv Ram Kashyap (An Ordinary Fellow, 1933).

The General Secretary reported the following loss of membership, since the previous meeting, by resignation :—

(10) I. M. Puri (An Ordinary Member, 1928).
(11) H. M. Bose (An Ordinary Member, 1925).
(1) Sir D. P. Sarvadhikary (An Ordinary Member, 1909).
(2) P. S. Jackson (An Ordinary Member, 1923).
(3) H. A. Fooks (An Ordinary Member, 1931).

The General Secretary reported that the election of—

(2) B. M. Vyas (Elected on 3-9-34),

has become null and void, under Rule 9.

The General Secretary reported that the following has withdrawn his application for membership, since the previous meeting :—

(1) S. A. Ashgar (Elected on 3-9-34).

The President announced the result of the ballot for the election of Ordinary Members and declared that all candidates had been duly elected.

The President announced that no meeting of the Medical Section had yet been arranged to be held during the current month.

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MARCH, 1935.

An Ordinary Monthly Meeting of the Asiatic Society of Bengal was held on Monday, the 4th, at 5-30 P.M.

PRESENT.

SIR DAVID EZRA, KT., F.Z.S., M.B.O.U., Vice-President, in the Chair.

Members :

Bose, Mr. M. M.
Calder, Mr. C. C.
Chakravarti, Mr. C.
Chanda, R. B. R.
Chatterjee, Mr. P. P.
Dey, Mr. Mukul
Driver, Mr. D. C.
Ghose, Mr. T. P.
Ghuznavi, Mr. I. S. K.
Hobbs, Mr. Harry
Hora, Dr. S. L.
Jain, Mr. C. L.
Ledrus, Rev. M., S.J.
Manen, Mr. Johan van
Prasad, Mr. Sharda
Rahman, Mr. S. K.
Rao, Mr. U. S.
Ray, Dr. H. C.

Visitors :

Husain, Mr. S. Wajahat
Sen, Mr. A. B.

The minutes of the last meeting were read and confirmed.

The General Secretary reported receipt of nine presentations of books, etc., which had been placed on the table for inspection.

The following candidates were balloted for for election as Ordinary Members :—

(12) *Jack, The Hon'ble Mr. Justice Robert Ernest,* I.C.S., United Service Club, Calcutta.

Proposer : L. L. Fermor.
Seconder : J. Lort-Williams.

(13) *Groth, Edward M.,* American Consul, American Consulate General, 9, Esplanade Mansions, Esplanade, Calcutta.

Proposer : Johan van Manen.
Seconder : L. L. Fermor.

(14) *Roy, Saileswar Singh*, Landholder, 15, Lansdowne Road, Calcutta.

Proposer : Johan van Manen.
Seconder : Sir U. N. Brahmachari.

The General Secretary reported that there had been no loss of membership since the previous meeting, by death.

The General Secretary reported the following loss of membership, since the previous meeting, by resignation :—

(4) E. C. Dewick (An Ordinary Member, 1927).

The General Secretary reported that the election of—

(1) A. K. Chanda (Elected on 5-11-34),

has become null and void, under Rule 9.

The General Secretary reported that there had been no withdrawals of application, since the previous meeting.

The General Secretary reported the constitution of the various Standing Committees of the Society for the year 1935-36 to be as follows :—

Finance Committee :—

President
Treasurer } *Ex-officio.*
General Secretary
Dr. J. N. Mukherjee.
Dr. A. M. Heron.

Library Committee :—

President.
Treasurer.
General Secretary.
Philological Secretary
Jt. Philological Secretary
Physical Science Secretary
Biological Science Secretary } *Ex-officio.*
Medical Secretary
Anthropological Secretary
Library Secretary

Publication Committee :—

President.
Treasurer.
General Secretary.
Philological Secretary
Jt. Philological Secretary
Physical Science Secretary
Biological Science Secretary } *Ex-officio.*
Medical Secretary
Anthropological Secretary
Library Secretary

The Chairman announced the result of the ballot for the election of Ordinary Members and declared all candidates duly elected.

The Chairman announced that no meeting of the Medical Section had been arranged to be held during the current month.

The following communication was made and commented upon :—

1. JOHAN VAN MANEN.—*Recent Advances in the study of Chinese Philosophy.*

The recent issue of the second volume of Forke's elaborate history of Chinese Philosophy makes it opportune to consider the present position of the study of Chinese Philosophy in relation to a comprehensive historical study of the philosophy of all mankind.

An attempt is made to review and assess the available material.

Mr. *Van Manen* said that history might be compared to map making. The progressive description of historical knowledge was like filling in blank spaces on the map with details of greater and greater precision and growing minuteness. Considered from the point of view of function one might think of the growth of knowledge as akin to the development of communications in a country, or to growing internal specialization and development of nerve centres in the human brain. So modern a book of reference as the latest edition of the Encyclopædia Britannica dealt in its article on the history of philosophy only under the headings of Greek Philosophy, Patristic Philosophy, Arabic and Jewish Philosophy and Modern Philosophy. In a brief introductory paragraph to the elaborate article one would find the following sentences :—'To all intents and purposes ancient philosophy is essentially Greek Philosophy. This is not to deny the reality and value of Eastern Philosophy, but it remains true that Western Philosophy from Thales onwards is sufficiently self-contained to warrant separate treatment. There are separate articles dealing with Brahmanism, Buddhism, Indian Philosophy, Arabian Philosophy, Jewish Philosophy, etc.' Baldwin's Dictionary of Philosophy and Psychology, which represents a standpoint of about a quarter of a century ago says under the heading 'History of Philosophy' that the subject 'may, as a whole, be divided into two great portions, that which treats of Oriental Philosophy and that which deals with Occidental or European and American Philosophy'. The article on Oriental Philosophy deals with Egypt, Babylonio-Assyria, Persia, India and China. Up to recently general books on the history of Philosophy dealt with non-European Philosophy as a rule as a negligible quantity. Speaking in very broad generalizations it is only with the publication of Deussen's History of Philosophy that Indian Philosophy was incorporated on an equal footing, and acquired in the West citizen rights in the republic of human thought. A. Forke has felt the ambition of achieving for Chinese Philosophy what Deussen had done a few decades ago for Indian Philosophy. In 1927, he published his history of ancient Chinese Philosophy, followed in 1934 by his history of mediæval Chinese Philosophy. A third volume is to complete the work, continuing the history to modern times. The two published volumes cover about a thousand quarto pages. The material contained in them is not chiefly based, as in most of this kind of works hitherto published, on the chance material to be found dealt with in isolated monographs or translations, but goes beyond second-hand sources, dealing systematically with the single subjects on the basis of the original texts. It passes in review in a methodical manner the entire material available in China. Passages quoted in translation in the course of the work are everywhere given in the original in foot-notes.

The speaker then gave a brief sketch of the study of Chinese Philosophy in the West before Forke.

In the *Mélanges posthumes* of Abel Rémusat (Paris, 1843) there is a brief essay of 45 pages on Chinese Philosophy. It opens with a list of names of Western scholars who had studied the subject before, and it enumerates Herdtrich, Carpzov, Bayer, Noël, Leibnitz, Bülfinger, and 'many others'.

He exhibited some older publications, such as Intorcetta's *Confucius, Sinarum Philosophus, sive Scientia Sinensis* (Paris, 1687) and also Marshman's *Works of Confucius containing the original text with translation* (Serampore, 1809), the latter a work of special interest for inhabitants of Calcutta.

He then referred to the more recent works of Von Brandt, de Harlez, Faber, Grube, Wieger, Suzuki, Wilhelm, Tucci, Zenker, and Hackmann, as well as to some recent Chinese and Japanese Historians of Chinese Philosophy. He showed how in the last 50 years a great mass of material had been published on Chinese religion in which the religious and philosophical aspects had not yet been clearly differentiated.

A great drawback was that the available literature on Chinese philosophy and religion is so extensive and so difficult of access that few scholars can utilize all that has already been published in learned and general periodicals, in the form of academical dissertations, of pamphlets, and of separate chapters in general works.

The first compendious treatment of Chinese Philosophy in the West was perhaps the Chinese part of *Die Philosophie im Fortgange der Weltgeschichte* by Windischmann of which the first of the four volumes (1827) is devoted to China. The work is based on the scanty material available at the time, and is rather wide than deep.

Another interesting treatise is the first part of an *Einleitung in das Verständniss der Weltgeschichte* by Aug. Gladisch, who drew a parallel between Chinese and Pythagorean thought, Posen, 1845.

Zenker's *Geschichte der Chinesischen Philosophie* was published in two volumes in 1926 and 1927. It is written with enthusiasm and more primarily in the interest of philosophical than philological study. Hackmann's *Chinesische Philosophie* was published in 1927 in one volume. The author is a sinologist by profession and his work is an excellent and well-balanced production though briefer than Forke's compendium and without Chinese quotations.

In English Suzuki's *Brief History of Early Chinese Philosophy*, London, 1914, is a readable, but as the title indicates, a briefer and more fragmentary work.

A similar work in Italian is Tucci's *Storia della Filosofia Cinese Antica*, Bologna, 1922.

The speaker then rapidly sketched the discovery of Taoism and the spread of the Tao Te King in Europe, of which at present some fifty European translations exist, followed by the study of other masters of the Taoistic school, such as Lie Tsze and Chuang Tsze.

It had to be noted that notwithstanding the many translations and the fact that the Chinese text of the Tao Te King had been printed by five different European scholars since 1842, Western scholarship had not yet produced an adequate critical *variorum* edition of the important work. He also referred to the study of the enigmatic old divination book, the Yi King, of which at present some seven European translations exist.

He concluded with the expression of his opinion that thanks to Forke's great work, Chinese thought had now acquired a lasting place in all future history of the thought of mankind and that the big blank hitherto occurring in the philosophical map of the world with regard to China could never be left empty again.

Mr. *H. Hobbs* asked for a definition of the word philosophy.

Mr. *Van Manen* replied that there were almost as many definitions as philosophers. The richer the contents of a concept, the more difficult to enclose them fully or adequately in words. A Chinese philosopher had said, *our* truth is not *the* truth. A definition in a well-known dictionary was 'the science of science', also expanded to 'the science of the foundations of knowledge'. James prefers a more human and less scholastic definition and says that philosophy is simply 'man thinking'. The Encyclopædia of Religion and Ethics agrees with this view in using the neat phrase 'rational reflexion upon experience'. If he recollected well, a definition given by Cardinal Mercier was that philosophy is the search of the deepest causes of the most general principles. From other points of view it may be said that philosophy is the study of the connection of existence in all its forms, or the study of principles, generalities, as against facts and particulars, which might be called science. Again, it might be held that philosophy seeks meaning, value, interpretation. Other simple definitions are to call philosophy classification, not only in a superficial but in progressively deeper ways, or mental research of unity or again differently, to call it the art of synthesis or co-ordination.

Mr. *Hobbs* suggested that philosophy aims at finding the exact truth which, seeing that man is necessarily biassed, must be a hopeless ideal. However, the less bias, the nearer the truth.

The following paper was read :—

1. S. WAJAHAT HUSAIN.—*Mahmūd Gāwān.*

Mahmūd Gāwān was one of the most remarkable characters in mediæval Indian History and a scholarly life of him, based on original research, has not been published. The present paper supplies that want. All the sources, except those in the Portuguese language, have been used by the author in this compilation.

The life-history of Mahmūd Gāwān is treated under the following heads in this paper :—

Early life and education. Travels and trading. Arrival in India and rise to the position of Prime Minister in the Deccan. Administrative skill. Military skill. Educational activities. Activities as author and poet. Domestic life. The end.

Dr. H. C. Ray enquired for details concerning the sources utilized by the author. Had any local chronicles been discovered dealing specifically with Gāwān or the dynasty he served and belonging to a contemporary period ? He warned against depending too much on Firishta whom he has been found sometimes rather unreliable, as he had shown in his *Dynastic History of Northern India.* He requested the author not only to quote his sources in detail but to appraise their value. He further wished for a statement from the author as to how far his paper had added to our previous knowledge of Gāwān.

Mr. *R. Chanda* suggested that the usefulness of the paper might be enhanced by the addition of an appendix giving a literal and critical translation of Firishta's text.

Mr. *Hobbs* remarked that the life-story revealed by the author clearly indicated the outstanding character of Gāwān. A man rising to the position to which Gāwān rose under a potentate of a character as that of his master and in the circumstances of his times must needs be of great human interest.

In reply Mr. *Wajahat Husain* said that Mullā 'Abdul Karīm Hamadānī, a contemporary and friend of Mahmūd Gāwān, has written a work on the life of Gāwān from his birth till his last days. Firishta states that he has based his biography of Gāwān chiefly on this contemporary writer, but this source has apparently not survived and no copy of the work can be traced. No other independent contemporary sources are known.

In his paper the speaker had quoted in detail all sources utilized by him, which are practically all 'secondary' ones.

As to a translation of Firishta's data, there would be a difficulty. There is no completely consolidated section concerning Gāwān in Firishta. References to him are scattered throughout his work and might be all sought out and brought together, but this was not exactly the aim of the present paper which attempted a connected narrative embodying the dispersed data with any comments that modern scholarship had produced with regard to them. In a way it was true that his paper did not give much that was entirely new but he claimed that it was more detailed and complete than the previous notices of Gāwān hitherto published.

The following exhibits were shown and commented upon :—

1. S. L. HORA.—*An interesting Implement for Mud-fishing from Uttarbhag, Lower Bengal.*

Recently, an article on 'Mud-fishing in Lower Bengal' was published in the *Journal* of the Society. It may be recalled that in the various devices described therein fishes were collected by hand from semi-liquid mud. This method may be practicable in small fisheries, but when bigger areas are drained off for fishing purposes, a circular basket of the usual material and make, about 9½ inches in diameter and 23 inches in total length, is used. One end of the basket is open and the mouth is strengthened by a circular band of broad bamboo-strips. At a distance of about 16 inches from the mouth, there is another band of bamboo-strips, after which the split-bamboo sticks are pulled together and secured by a loop of string. The loop is fastened to the nearest band. In this way, the other end of the basket is closed and made to serve as a handle for manipulating the basket.

The split-bamboo sticks, which run lengthwise, are about half an inch apart so that when the open end is dragged through mud, it passes out through the wide spaces and only the fish are trapped inside the basket. The author is given to understand that it is a very effective implement for mud-fishing and that with its help large quantities of *Jiol Machh* (Live Fish) are captured from marshy areas in Lower Bengal.

Mr. *Van Manen* enquired whether the size of the mazes of the basket was so calculated that small fish of no economic importance should escape, and what was the average size of the fish caught.

In reply to Mr. *Van Manen's* enquiry Dr. *Hora* stated that the implement was not meant for catching small fish, such as Putiya (*Barlius* spp.), but for specimens of about 4 inches to 1 foot in length. The interspaces between the split-bamboo sticks are sufficiently wide to allow small fish to pass out along with mud. *Koi machh* of about 6 inches in length were plentiful at Uttarbhag and these had presumably been collected by an implement of this type.

Mr. *I. S. K. Ghuznavi* remarked that the use of the appliance was principally to avoid stings of Jiol Singi māchh and Māgur, etc., when seeking for them in semi-fluid mud where they cannot be caught with a net.

2. SHARADA PRASAD.—*Two Sculptural Fragments from Central India.*

(1) Head of a deity, perhaps Viṣṇu. Probable find-place Sohagpur, site of ruined Chedi temples, South Rewa Baghelkhaṇḍ. Possibly of the late mediæval period. The elaborate *Kirīṭa* 'crown', the heavy pendant in the elongated ear (the other ear is missing), and the thick lower lip are among the remarkable features conforming to the Gupta style. The half-closed eyes suggest the meditative mood. The tranquil expression of the face is highly impressive.

(2) Head of an equestrian statue. Discovered in a forest 30 miles south-west of Satna. Date *c.* A.D. 1700. The grotesque but vigorous face presumably represents a Gond Chief. Similar images are known to be worshipped among the Gonds under the name of Bara Deva. An entire specimen is found in the Lal Bihari Memorial Collection, where the Chief rides a horse.

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APRIL, 1935.

An Ordinary Monthly Meeting of the Asiatic Society of Bengal was held on Monday, the 1st, at 5-30 P.M.

PRESENT.

L. L. FERMOR, ESQ., O.B.E., A.R.S.M., D.SC., F.G.S., M.INST.M.M., F.R.S., F.A.S.B., President, in the Chair.

Members :

Agharkar, Dr. S. P.
Brahmachari, Sir U. N.
Calder, Mr. C. C.
Chanda, R. B. R.
Chatterjee, Mr. P. P.
Dey, Mr. Mukul
Ezra, Sir David
Gee, Mr. E. R.
Ghose, The Hon'ble Mr. Justice M. C.
Ghose, Mr. T. P.
Hobbs, Mr. H.
Hora, Dr. S. L.
Hosain, Dr. M. Hidayat
Jack, The Hon'ble Mr. Justice R. E.
Manen, Mr. Johan van
Prashad, Dr. Baini
Rahman, Mr. S. K.
Roy, Mr. Singh

Visitors :

Bose, Mr. H. K.
Chhabra, Dr. B. Ch.
Fermor, Mrs.

The minutes of the last meeting were read and confirmed.

The General Secretary reported receipt of five presentations of books, etc., which had been placed on the table for inspection.

The General Secretary announced that there had been no applications for membership, since the previous meeting.

The General Secretary reported the following loss of membership since the previous meeting, by death :—

(1) Dr. Ganesh Prasad (An Ordinary Member, 1935).

The General Secretary reported the following loss of membership, since the previous meeting, by resignation :—

(5) Sivapada Bhattacharyya (An Ordinary Member, 1922).

The General Secretary reported that there had been no lapses of election, since the previous meeting, under Rule 9.

The General Secretary reported that :

(1) Mr. Justice C. O. Remfry (Elected on 3-12-34),

had withdrawn his application, since the previous meeting.

The Chairman announced that no meeting of the Medical Section had been arranged to be held during the current month.

The following exhibit was shown and commented upon :—

1. BAINI PRASHAD.—*Ethnological Specimens from the Naga Hills, Assam.*

During the course of a zoological tour about the end of February of this year in the Naga Hills, Assam, the opportunity was taken to collect a few ethnological specimens of this interesting group of tribes.

There is a strip of irregular hills running down from the Himalayas separating Assam and Bengal from Burma. The River Brahmaputra at the northern end of these broken ranges of hills makes a deep inroad into the hills, and it is in the hills generally known as the Naga Hills and which are situated immediately to the south of the encroaching valley referred to above that the Naga tribes have their present home. Starting from Kohima, the headquarters of the Naga Hills and of the Angami tribe, the tour extended through the Sema area to Mokokchung which may roughly be taken as the junction of the Sema and the Ao tribal areas. *En passant* it may be mentioned that Mokokchung is the Sub-Divisional headquarters and second administrative town of the whole area. From Mokokchung the party travelled through the Ao country to Nakachari railway station in the Sibsagar District and it was during this tour that the collection referred to above was made.

The exhibits consist of samples of dress of both men and women of the three tribes, samples of their *daos* and spears, a few specimens of *dao*-holders and three interesting types of beer-drinking mugs. In addition effigies of human and *mithan* heads collected in the area are also exhibited.

DR. *Prashad* said :—

Opportunity was taken by me and my colleague, Dr. B. N. Chopra during the course of a zoological tour in the Naga Hills last February to collect a few ethnological specimens, which appeared to have some interest for us amateurs, from the three tribes of Nagas through whose territory we travelled.

Before explaining the exhibits it would be useful to give a short account of the country and the people visited by us. Running down from the Himalayas and separating Assam and Bengal from Burma is a fairly broad strip of irregular hills. The River Brahmaputra at the northern end of these broken ranges of hills makes a deep inroad into the hills resulting in a valley, and it is in the hills situated immediately to the south of this encroaching valley and generally known as the Naga Hills that the Naga tribes have their present home. The Naga Hills are directly under the administration of the Government of Assam and are administered as a separate district under a Deputy Commissioner. The administration of this area is unique, in that there is no police, no pleaders or the extra-heavy machinery of administration. The Deputy Commissioner and the Sub-Divisional Officer with the help of a number of *Dobhasis* or interpreters successfully carry on the entire administration of the area.

Starting from Kohima, which is the headquarters of the Naga Hills district and which small town lies between the Manipur railway station on the Assam-Bengal Railways and Manipur town, we travelled through the hills inhabited by the Angami and the Sema Nagas, to Mokokchung which is the second administrative town of the district; Mokokchung also marks the junction of the Sema and the Ao tribal areas. From Mokokchung we travelled through the Ao country to Nakachari railway station in the Sibsagar District, and then entrained back for Calcutta.

It would be presumptuous on my part to claim anything but an amateur's knowledge gained firsthand during this short tour of this interesting group of tribes, the Angami, the Sema and the Ao Nagas, during the three weeks or so which we spent in this part of the country. Detailed accounts of the first two tribes, the Angami and the Sema, have been published by Dr. J. H. Hutton, at present Deputy Commissioner of the Naga Hills and a world-renowned authority on the Nagas, in the series of monographs on the primitive tribes of Assam, while two monographs on the Ao Nagas have been published by Dr. W. C. Smith and Mr. J. P. Mills. These four volumes have been of very great help to me in understanding the social life and customs of the three tribes.

Dr. Hutton originally derived the word 'Naga' from the Sanskrit 'Nag', but later in view of the fact that Ptolmey in the 3rd or 4th Century A.D. and Shiabuddin Talish in the 16th Century both speak of Nagas as 'Nanga' or naked, he adopted the Sanskrit word 'Nagna' as the derivative of Naga. He, however, added that as the Assamese call them Naga, he is doubtful if this origin is correct, as he believes that both Ptolmey and Shiabuddin's derivation of Naga from Nanga may be due to their informers knowing Urdu only, thus leading these two authors to jump to the conclusion that 'Naga' is derived from 'Nanga'.

I do not propose to give you any detailed account of the three tribes, but a reference may be made to the fact that in the earlier days before the area came under British administration the Nagas were great head-hunters and relics of this custom are today to be found in the fact that they hang outside their houses heads of any animals which they may have killed in hunting or in chase. As human heads are impossible to obtain these days, these interesting people have taken to making effigies in clay of human heads, one of which is being exhibited today. The poorer folks who are even unable to obtain the heads of *mithans*, make them out of the sternal bones of fowls in which the horns are made of pieces of wood stuck through the sternum.

The dress of these people is very simple and both for males and females consists of a loin cloth which is either worn in the form of a kilt as in the case of the Angamis and women of all the three tribes, or as a flap known as the 'langta' as worn by the males of the Sema and the Ao tribes. There is in addition a larger piece of cloth worn in the form of a 'chaddur' over the shoulders. Samples of these cloths of different types are exhibited. The interesting point about the cloths of different types is the variety and richness of colour, but unfortunately in the areas under the influence of the Christian missions these richly coloured cloths are being replaced by drab, dark white or khaki.

The Nagas are great beer-drinkers, except in the areas under the influence of Christian missions and have both simple and elaborately worked beer-drinking mugs. *En passant* it may be mentioned that beer is a light, fermented liquid made by the Nagas themselves from rice. Their mugs are usually made out of a thick species of bamboo, which is locally quite plentiful. These vary from a very simple type made only of a pealed internode of bamboo to a highly polished and worked elongated type as made by the Chung tribe. Another interesting type of mug which was obtained at Chonglymsen and which is made of clay in the form of a highly elaborate jar with a perforated top. In addition some of the Nagas use the horn cores of *mithans* as their beer mugs. Almost all of them use thin hollow bamboo sticks for sucking the beer in the same way as the more civilized nations use straws nowadays. Some spears and *Daos* of the Nagas collected in the area are also exhibited.

In conclusion I have to express my very great indebtedness to Dr. J. H. Hutton, Mr. T. C. D. Lambert and their Staff for making all arrangements for my tour. My thanks are also due to my colleague Dr. B. N. Chopra for help in collecting the material exhibited.

Dr. *Hora* agreed that the Naga Hills constitute a wonderful place for ethnologists. He recalled his visit to the Naga Hills and the Manipur valley in 1920 with the late Dr. N. Annandale. His own experience corroborated the remarks made by Dr. Prashad about the distinctive dress and implements of warfare used by the various Naga tribes. He noticed, however, that the colour patterns and designs on the cloths had changed somewhat during the last 15 years. He praised the chastity of the Naga women and the good quality of the Naga beer.

Mr. *Hobbs* said :—

The Nagas much resemble the Scots.

Their spear shafts are decorated with human hair or fine cane, woven in different colours and designs. They wear a kilt, and play the pipes.

Forty odd years ago I was shooting in the vicinity of the Naga country. One of the men collapsed. The planter in charge of the party sent for assistance to a Naga village. The chief sent a woman who, after the man had been placed in a basket, carried him up the hill as though he was an infant.

The Nagas are regardful of the morality of their women, and no wise man would interfere with them. A planter friend of mine had an assistant, a splendid physical specimen, tall, blonde and brawny. One evening a party of Nagas was walking in file past this young fellow's bungalow. The women as usual bringing up the rear. One of the girls took him in at a glance. That night she came from her village, ten miles away, to the young man's bungalow. Very wisely he took her to the manager's wife who took care of her. About noon the next day the Nagas took her away. She came the next night and the same thing happened. The third time she did this the Nagas gave her a tremendous thrashing, which brought the Naga love story to an end.

A reference by Dr. Hora to motor cars caused me to recall a story told by Mr. Little, Chief Engineer, P.W.D., Assam. He took the first motor car, a Ford, into the Naga country. The Nagas were profoundly impressed. They looked at it sideways, in front, and from the rear; crawled underneath it; sat inside and on the bonnet. Then held a long pow vow before telling Little: 'It is a very good gharry, very good indeed, but nothing like so good as a steam roller.'

Dr. *B. Ch. Chhabra* said :—

I would draw attention to the term 'Nāga' as the designation of a tribe as well as of a mountain. The form 'Nāṅga' also occurs. As regards its derivation, it is connected with the Sanskrit words nāga 'serpent' and nagna, 'naked'. Most people prefer the latter explanation, perhaps thinking that it refers to the habit of the people, going about naked or almost naked.

The term Nāṅga can also be a corrupted form of the Sanskrit word nāga, as the vernacular words meṅh, māṅgh and bāṅh from Sanskrit megha, māgha and bāhu respectively.

I may point out that Indian History knows of Nāgas as ruling dynasties in ancient times. The Bhāraśivas, for instance, are also known as the Nāgas. In Further India certain royal dynasties trace their origin from a Nāgī princess.

In view of these considerations I would ask whether we have not in the present term a relic of a forgotten dynasty called the nāgas.

Rai Bahadur *Ramaprasad Chanda* remarked :—

The Sanskrit word *Nagna*, naked, does not only mean those who go naked, but also persons with inferior culture or false religion.

Dr. *Prashad* replied to the various speakers.

Mr. *Hobbs* observed :—

Dr. Prashad, in the course of his summing up denied my statement about 'bagpipes'. I would point out that I said 'pipes', because the tone and the irregular musical intervals are, or were, reminiscent of the Scottish pipes.

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MAY, 1935.

On account of the Royal Jubilee celebrations no Ordinary Monthly Meeting was held.

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JUNE, 1935.

An Ordinary Monthly Meeting of the Asiatic Society of Bengal was held on Monday, the 3rd, at 5-30 P.M.

PRESENT.

SIR DAVID EZRA, KT., F.Z.S., Vice-President, in the Chair.

Members :

Bent, Mr. W. A.
Bose, Mr. M. M.
Chanda, R.B. R.
Chattopadhyaya, Mr. K. P.
Dey, Mr. Mukul
Manen, Mr. Johan van
Singh, Mr. Sarabjit

Visitors :

Ambler, Capt. G. M.
Chaterjee, Dr. Marcel

The minutes of the last meeting were read and confirmed.

Before proceeding to the further business of the evening the Chairman drew the attention of the meeting to the very pleasant fact that in the Honours List published at the occasion of His Majesty's birthday, the name of the President of the Asiatic Society of Bengal was included as the recipient of a Knighthood. He felt that every member of the Society would feel grateful on account of the honour bestowed on Dr. L. L. Fermor and he proposed that the General Secretary should send a telegram of congratulation to Sir Lewis Fermor on behalf of the meeting.

The proposal was accepted by acclamation.

The General Secretary reported receipt of twelve presentations of books, etc., which had been placed on the table for inspection.

The General Secretary announced that the following candidates would be balloted for for election as Ordinary Members :—

(15) *Singhania, Raghunath Prasad,* Vidyabhusan-Visarad, Secretary, Rajasthan Research Society, 27, Baranoshi Ghose Street, Simla, Calcutta.

Proposer : O. C. Gangoly.
Seconder : R. Chanda.

(16) *Sen, Bhupati Mohan,* M.Sc. (Cal.), M.A. (Cantab.), Indian Educational Service, Principal, Presidency College, 20-A, Mayfair, Ballygunge, Calcutta.

Proposer : Sir U. N. Brahmachari.
Seconder : S. L. Hora.

The General Secretary reported the following loss of membership, since the previous meeting, by death :—

(2) H. A. Giles (An Honorary Fellow, 1917).
(3) Rev. H. Hosten, S-J. (An Associate Member, 1910).
(4) Vishwanath Vasu (An Ordinary Member, 1934).
(5) L. N. Rai (An Ordinary Member, 1928).
(6) A. G. Lunan (An Ordinary Member, 1929).

The General Secretary reported the following loss of membership, since the previous meeting, by resignation :—

(6) Saradindu Mukherjee (An Ordinary Member, 1924).
(7) A. N. Mukherjee (An Ordinary Member, 1926).
(8) Rev. F. B. Fisher (An Ordinary Member, 1929).
(9) S. K. Ahmad (An Ordinary Member, 1930).
(10) Bhabadeb Mookerjea (An Ordinary Member, 1928).
(11) Sir C. V. Raman (An Ordinary Fellow, 1925).
(12) Nilmoni Chakravarti (An Ordinary Member, 1909).

The General Secretary reported that there had been no lapses of election, since the previous meeting, under Rule 9.

The General Secretary reported that there had been no withdrawals of application, since the previous meeting.

In accordance with Rule 38, the General Secretary announced that the names of the following Ordinary Members would be suspended as defaulters within the Society's building for the period of a month to be removed from the Society's registers for non-payment unless the amount due be paid before the next Ordinary Monthly Meeting :—

G. N. Bose Mullick
G. S. Kewal
P. V. Ramanujaswami
D. L. Clendenin
Raja K. Deb, Rai Mahasai
Dr. Mircea Eliade
S. B. S. W. Laden La
S. K. Roy
P. K. Das
J. J. Mahudavala

In accordance with Rule 48(*a*), the General Secretary reported that the Council, since the last Ordinary Monthly Meeting, had adopted the following Regulations regarding the award of 'Pramatha Nath Bose Memorial Medal'.

Regulations regarding the Award of the Pramatha Nath Bose Memorial Medal.

(1) The Medal shall be awarded every three years at the Ordinary Annual Meeting of the Asiatic Society of Bengal in February.

(2) The Medal shall be bestowed on a person who, in the opinion of the Council has made conspicuously important contributions to practical or theoretical Geology with special reference to Asia.

(3) The General Secretary shall at a meeting of the Council preceding the Ordinary Meeting in November place before the meeting the names of at least three Geological Experts and three members of the Society for consideration.

The Council shall then proceed to appoint an Advisory Board of not less than three members selected from the list placed before them provided that the Council, for special reasons, shall be entitled to select persons outside the list. The Advisory Board shall always include two Geological Experts and the General Secretary shall be an ex-officio member of the Board.

(4) The Advisory Board shall be termed 'The Pramatha Nath Bose Memorial Medal Advisory Board'. The Board shall appoint a Chairman from amongst its members who shall have a casting vote (in addition to his own vote) in the event of the number of votes being equally divided.

(5) The General Secretary shall call a meeting of the Advisory Board on the first convenient date subsequent to the first Monday of December, at the same time requesting members to bring with them to the meeting a detailed statement of the work or attainments of such candidates as they may wish to propose. The General Secretary shall also place before the Board for consideration detailed statements of the work or attainments of any other candidate submitted by any Fellow of the Society. The Board shall make such arrangements as may be necessary for the selection of a name to be submitted to the Council at their December meeting.

(6) Notwithstanding anything determined in these Regulations, it shall be within the competence of the Board to abstain from the selection of any name to be submitted for the year and to report accordingly to the Council, in which case, provided the Council concurs, the award for the year shall lapse and shall be postponed to the next following year to be determined in the manner prescribed in the above rules, and, if necessary, deferred again year by year, until an award be made, the period mentioned in Rule 1 in such case to be reckoned from the date of the award.

The following papers were presented :—

1. Jogendra Chandra Ghosh.—*Ekānaṁśā and Subhadrā.*

The author has made an attempt in this paper to answer (1) How and when Durgā came to be called Ekānaṁśā ; (2) How she came to be associated with and worshipped along with Baladeva and Kṛṣṇa; and (3) How and when her name came to be changed to Subhadrā.

Etymology of the word Ekānaṁśā. Mention of Ekānaṁśā in iconography in the Bṛhatsaṁhitā. Varāhamihira's description relating to Ekānaṁśā in his chapter on Pratimālakṣaṇa.

Criticism of Rai Bahadur Prayag Dayal's identification of Lakṣmaṇa in his account of *Important Sculptures added to the Provincial Museum, Lucknow, during the last Decade*, in the *Journal of the U.P. Historical Society*, Vol. VIII, Part II, 1934.

Conclusions.

In the absence of the author the paper was taken as read.

2. K. P. CHATTOPADHYAY.—*The Caḍak Festival.*

The Caḍak festival is associated with the vernal equinox. The ceremony begins a week before the end of the month of Caitra (March-April) and culminates on the last day of that month, which also marks the close of the year in Bengal. This date is known as the day of the passing of the sun into Aries (Mahāviṣuva saṃkrānti). Actually it comes after the day of the vernal equinox by about three weeks. The name, however, indicates clearly the association with the equinoctial day which once did coincide with this date. The end of the year in Bengal appears in course of time to have lagged behind to this extent. The traditional origin of the festival is that on this date king Vāṇa in order to please Mahādeva, drew blood from his body as an offering and propitiated him by dances (along with friends) which are favoured by him.

Conclusion: The Māṇḍa festival, the Caḍak and Dharma worship are closely connected, identical in many respects and have a common origin. They are all based on a belief in resurrection, or coming to life after death, and are intended to be celebrated annually to secure the return to life of the deceased members of the community.

Mr. *Chattopadhyay* explained that for his communication to the meeting he would limit himself to two or three salient points without going into details which the paper, when printed, would place before the readers. He would only limit himself to the following remarks.

In a previous paper he had published in the *Journal* of the Society a description of the Maṇḍa festival as it is found in Chota Nagpur. The Caḍak festival, now described, is comparable to the Maṇḍa Celebration. The latter was observed in 1934 during the last week of Caitra in different places in Calcutta and suburbs. In this Caḍak festival the deity worshipped is Śiva, or Mahādeva. The place of worship is generally a temporary thatched hut facing the south. An earthen image of a crocodile with a male child between its jaws is also built on the ground to the east of the hut. The crocodile is associated with the offerings to the Sun. The following special ceremonies are performed by the devotees on different days:—

(1) swinging over fire,
(2) falling on thorns,

(3) jumping on knives,
(4) piercing the skin, with arrows,
(5) the marriage of Śiva ; and the fire dance,
(6) swinging on the Caḍak tree,
(7) the propitiation of the resuscitated ghosts.

He also wished to give expression to his opinion that the festival was of exceedingly remote origin.

Mr. *M. M. Bose* remarked :—

The word 'Carak', it appears, is derived from the Sanskrit 'Cakra' or wheel, that is 'wheel of time'. The festival is connected with the end of the old year and the beginning of the new year. A year means a single revolution of the wheel of time and this is celebrated by revolving the 'carak' wheel, and Śiva or Mahākāla—the great God of Time—God of destruction and resurrection, is worshipped in this connection. In several parts of India the year ends with Kārtika Amāvasyā—when the Dīpāvalī festival is celebrated and Mahākālī or the great Goddess of Time is worshipped. I doubt very much if these festivals are of non-Aryan origin as suggested by the lecturer. More proofs are necessary before this suggestion can be accepted.

Mr. *Van Manen* inquired whether the speaker meant to imply that he regarded the ceremony as of aboriginal origin, adapted to Hinduism, or as of ancient Hinduic origin ?

The speaker replied that he considered the origin to be pre-Vedic, but that he regarded the expression Hinduism as an undefined term and so preferred to let the matter remain where it was.

3. G. M. Ambler.—*A Vocabulary of the Mawkhen, Salon, or Sea-Gipsy Language of the Mergui Archipelago.*

An attempt has been made to draw up a vocabulary of the Mawkhen language of sea-gipsies who inhabit the Mergui Archipelago, where the author has collected materials during his visits in 1932-33. The materials prepared by him were collected and tested with the help of two Mawkhens who were members of the crew of the author's vessel.

The Mergui Archipelago, on the coast of Lower Burma, consists of 804 islands varying in size. The Salons (Mawkhens) are a very primitive people who inhabit this archipelago and are gradually dying out. Till now the only records of them have been obtained from the 'civilized' members of the tribe, and very little appears to have been published on this insignificant group of Indonesians and their language.

The vocabulary is a double one: Salon-English, and English-Salon. It contains some 400 words apart from the numerals, the names of relationships and a number of short sentences.

A brief introductory description of the Mergui Archipelago is added.

The speaker invited his audience to accompany him to the coast of Lower Burma, from Tavoy, which lies south of Moulmein, to VICTORIA POINT, the most southernly point of Burma which here meets the north-west frontier of Siam.

In this area are three notable ports of call for regular steamship services :—

Tavoy : a port situated, inland, up the Tavoy river from where interior produce is exported.

Mergui : a coastal port, headquarters of the Mergui administrative division, noted for its pearl fisheries, tin and general produce.

Victoria Point : the most southernly port in Burma, with an aerodrome and airways service.

Along this coast, and in the above area is a group of over 800 islands, from mere rocky pinnacles rising sheer out of the sea, to substantial islands like St. Matthews, which is 16 miles long by 6 miles broad, with a mountain peak 3,000 feet high near the south centre ; Kisseraing Island, 18 miles by 10 miles ; the most fertile island in the Group ; Elphinstone Island, 12 miles by 6 miles.

The majority of the islands are covered with dense, tropical virgin jungle and are uninhabited.

These islands are known as the Mergui Archipelago, and it is in this area that this strange tribe is found, variously called 'Selung', 'Salon', 'Sea-Gipsy', 'Orang Laut', 'Orang Sletar', 'Orang Kayang'. In their own language these people term themselves 'Mawkhen' which, literally translated means the 'Drowned people'.

These Mawkhen live all their lives in boats called by them 'Kabang', of most original construction unlike any type of vessel to which we are accustomed.

A log is hollowed out to form the keel, and the sides are heightened by the addition of palm stems and bamboos, laid horizontally along the gunwale, the whole lashed with jungle fibre and caulked with the nest of the dammer bee worked up with Gurjan oil and rosin, all locally available in the forest. Not a single iron nail is used throughout.

In these Kabangs the Mawkhen roam from island to island, fishing and occasionally hunting deer and pig with the aid of the innumerable pariah dogs that live with them in their boats.

The Mawkhens do not practice agriculture. They eke out their diet of fish and flesh by the addition of roots and herbs of which there is a plentiful supply on the islands.

The Mawkhens do not build houses, except a few who have been induced to settle in Victoria Point, who have rough sheds on stilt, in the tidal flats. For shelter they have mats made of the dunnee palm which they erect on their boats or on shore when necessary.

The Tribal Classification has not yet been definitely settled, though, for the present these people are classified as Austronesians.

The Mawkhen language does not appear to bear affinity to any known language but has a number of words that are evidently borrowed from Malay, Siamese and the Chams of Cambodia.

These people are extremely timid and at a very primitive stage of civilization. They have quite a wealth of folk-lore but no real history. They believe in ghosts, evil spirits and the continuation of life after death on another planet. They have a very hazy haphazard idea of a Supreme Being whom they term Thoida, but appear to have no real form of worship. They stand in great awe of their witch doctors (Micha-Blen) and of the magic spells they are supposed to be able to cast. The speaker stated that he intended shortly to go out again to obtain fuller details of their folk-lore, customs, and language.

After the reading of the papers, the following exhibit was shown and commented upon :—

1. SARABJIT SINGH.—*Tobacco Pipes and other objects from the Naga Hills, Assam.*

At the last meeting of the Society Dr. Baini Prashad exhibited ethnological specimens from the Naga Hills and made some observations on certain tribes of the Nagas and the country inhabited by them. The present exhibitor accompanied Dr. Prashad in his tour to the Naga country with the object of making an ethnological collection and studying the physical anthropology of the people.

The specimens of tobacco pipes exhibited were procured from the Angami, Sema, and Ao tribes. Samples of ear-ornaments of men and women, as well as two interesting types of musical instruments were also exhibited.

Mr. *Singh* explained his exhibit as follows :—

Most Nagas, whether men or women, are inveterate smokers, and even children start smoking at a fairly early age. A specimen of the plant, the leaves of which are generally used for smoking by the Nagas, was kindly identified by the authorities of the Botanical Survey of India as *Nicotiana tabacum* Linn. The leaves of this plant are prepared for smoking by being half dried in the sun and are thereafter rolled up with the feet into thin bundles. Such crudely prepared tobacco is kept alight by means of a piece of live charcoal placed in the bowl of the pipe. In general two types of smoking are practised by the Nagas : (1) dry smoking, and (2) smoking through water. In the latter case the smoke, before being inhaled, passes through a bowl of water which is attached at the base of the smoking pipe.

The simplest and most common type of dry-smoking pipe consists of a small piece of bamboo cut immediately below a node : this serves as the bowl for the tobacco, while another thin bamboo stem fixed into it at an angle slightly less than a right angle serves as the mouth-piece through which the smoke is inhaled. Amongst the Ao Nagas the mouth-piece stem is often decorated with bindings of cane, sometimes dyed red and woven up into elaborate patterns. The pipes of the Aos and Semas differ both in design and form, but the basic idea is identical.

The eastern Angamis and Semas generally use a pipe in which the smoke, before being inhaled, filters through a bowl of water. The receptacle for the tobacco is carved out of a soft grey stone and this is attached to the vertical bamboo or wooden stem fixed into the water receptacle at the base. The main stem dips into the water, while the side mouth-piece, through which the smoke is inhaled, sticks out just above the water level. The majority of the nicotine content of the smoke as it passes through the water is held back, and the water, therefore, before long becomes quite discoloured and saturated with nicotine. This nicotine water is later taken out and stored in bamboo or gourd phials which are carried by the Nagas tucked in their waist belts. Nagas take sips of this nicotine beverage from time to time while working in the rice fields or marching through the country. *En passant* it may be mentioned that it is one of the most important duties of the housewives to collect nicotine water for their husbands. According to the speaker's personal observation the liquid is never swallowed, but another observer records differently. According to Col. Wood, I.M.S. (*Journal of the Natural History Society, Darjeeling*) 'this nicotine drinking seems to have no deteriorating effect on the system except that it pigments the skin'. The skin of an addict to nicotine drinking, according to Col. Wood, takes on a complexion approaching the colour of a good, old seasoned meerschaum. In some cases for maturing the nicotine water tobacco ash from the bowl is also added to the water in the bowl, as it is believed that this makes the nicotine water ready for use in a much shorter time.

The Chairman announced the result of the ballot for the election of Ordinary Members and declared all candidates duly elected.

The Chairman announced that no meeting of the Medical Section had been arranged to be held during the current month.

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JULY, 1935.

An Ordinary Monthly Meeting of the Asiatic Society of Bengal was held on Monday, the 1st, at 5-30 P.M,

PRESENT.

SIR DAVID EZRA, KT., F.Z.S., Vice-President, in the Chair.

Members :

Bogdanov, Mr. L.
Bose, Mr. M. M.
Chakladar, Mr. H. C.
Chakravarti, Mr. C.
Chattopadhyay, Mr. K. P.
Driver, Mr. D. C.
Groth, Mr. E. M.
Heron, Dr. A. M.
Hobbs, Mr. H.
Ledrus, Rev. M., S.J.
Manen, Mr. Johan van
Singh, Mr. S.
Vidyabhusana, Prof. A. C.

Visitors :

Banerjee, Mr. Kalachand
Das Gupta, Mr. C. C.
Giskra, Baroness

The minutes of the last meeting were read and confirmed.

The General Secretary reported receipt of six presentations of books, etc., which had been placed on the table for inspection.

The General Secretary reported that there had been no applications for membership, since the previous meeting.

The General Secretary reported that there had been no loss of membership, since the previous meeting, by death.

The General Secretary reported the following loss of membership, since the previous meeting, by resignation :—

(13) Mathura Nath Mitra (An Ordinary Member, 1929).
(14) Sir J. C. Coyajee (An Ordinary Member, 1925).
(15) R. B. Khambata (An Ordinary Member, 1926).

The General Secretary reported that there had been no lapses of election, since the previous meeting, under Rule 9.

In accordance with Rule 38, the General Secretary announced that the names of the following ten Ordinary Members, who had, since the last meeting, been suspended as defaulters within the Society's building, had now been removed as defaulters from the Society's registers for non-payment of dues :—

G. N. Bose-Mullick
G. S. Kewal
P. V. Ramanujaswami
Raja K. Deb, Rai Mahasai
D. L. Clendenin
Mircea Eliade
S.B. S. W. Laden La
S. K. Roy
P. K. Das
J. J. Mahudavala

The following papers were presented :—

1. S. N. Chakravarti.—*Two Inscriptions from Barakar.*

These two inscriptions are found on the right door-jamb of the Gaṇeśa temple in the Begunia group of four temples at Barakar in the Burdwan District. Previous literature. Dates Śaka 1382=A.D. 1461, and Śaka 1768=1846. The author believes that on palæographical grounds Śaka 1468 or 1498 seems to be preferred. Detailed palæographical discussion. Transcription. Translation.

In the absence of the author the paper was taken as read.

2. K. P. Chattopadhyay.—*History of Indian Social Organization.*

If the social organization of India be examined, the first thing that strikes the observer is the peculiar system of endogamy combined with exogamy, running through the whole system, among the vast population of the country. It is also noted at once that the giving of food and drink or acceptance thereof, between different social groups, depends on certain ideas of purity associated with the groups.

Some people, it will be found, are considered very pure; and food and drink touched by them, or prepared by them, are accepted by all (with a few exceptions). They are the Brahmans proper.

These people in their turn accept water and certain kinds of food from only some of the other social units, called jāti or castes. These other groups are in general served by the Brahmans, as priests, though not by their highest sub-division.

There are other castes from which Brahmans do not accept food or drink but which at the same time are not regarded as very impure, and are entitled to certain social privileges. Finally there are the castes which are considered vile.

In general, it is found that the artisans and traders belong to the group which is considered fairly pure by the Brahmans; while the lowest group is formed by scavengers, menials, and people who follow such humble occupations as basket-making.

In order to explain, in the scientific sense, how such a system might have risen, we shall have to examine, in detail, the entire social organization. We shall also have to investigate how far the researches of ancient and modern workers in this field have contributed to clarify the issues.

The author therefore examines the various theories concerning the origin of castes and also the factors in caste development, as follows :—

The major conclusions may be briefly summarized as follows :—

(i) An immigration of one or more cultured peoples, laying stress on household exogamy, and not on paternity, leading to a growth of matrilineal society of different types under different conditions, with anomalous kin marriage.
(ii) Interaction of matrilineal people from different areas leading to further changes.
(iii) Immigration of a patrilineal people leading to cross-cousin marriage, along with mother-right but giving an appearance of father-right in case of patrilocal residence ; and elsewhere imparting strongly patrilineal traditions.
(iv) A final cultural domination by a patriarchal people.

Alliances between different groups, and bitter struggles, appear to have taken place before some kind of equilibrium was reached, and the caste system with its complex structure evolved as a stable form of social organization.

Mr. *K. P. Chattopadhyay* stated that the paper was too big to be read out in its entirety. He would therefore summarize the arguments and conclusions.

The characteristics of Indian caste had to some extent been noted in the agenda paper. The writer pointed out that the caste system shows two kinds of divisions :—

1. A horizontal stratification finding expression in barriers to (*a*) marriage, (*b*) taking food of certain kinds, and (*c*) accepting water from those at lower levels. Certain occupations are restricted to each of the levels.

2. A vertical division which splits up each horizontal stratum into a number of compartments separated by bars against (*a*) intermarriage and to some extent (*b*) interdining. Certain occupations are definitely reserved for certain of these groups.

The early hypothesis put forward by the authors of the Hindu Dharmaśāstras was noted. Next the theories of modern writers like Ibbetson, Nesfield, Risley and Sénart were discussed and criticized. Ibbetson failed to explain how the system grew up. He merely noted the tribal basis of some of the castes in the Punjab, and ascribed the complications of the caste hierarchy to Brahmanic and priestly interference. Nesfield attributed the origin of the caste system to the evolution of the arts. He failed to note that some of the arts and crafts practised in the lower strata of society are quite complicated ; also the order of precedence varies from province to province. Other features of the caste system were not taken into account, or simply ascribed to priestly influence. Risley tried to explain the caste organization by the colour difference and consequent (alleged) enmity between the pre-vedic invaders and the earlier dark-skinned and uncultured people. Risley's conclusions are supported neither by the rules governing intermarriage or intermixture of races as found in the Dharmaśāstras, nor by the physical measurements of ethnic provinces. The instance of a highly developed pre-vedic culture in India was unknown to him. The author further pointed out that a stream of cultured immigrants, of fair skin and fine features, had penetrated to Nepal and built up the Newar culture, passing through Northern India and mixing with the earlier black-skinned people on the way. Yet caste had not developed. Further, the colour difference was sharper in Africa. Yet the home of caste was India, not Africa.

M. Sénart took into account the different viewpoints of these earlier theorists and also brought to bear on the problem his knowledge of early European social organizations and practices. He suggested that the uniqueness of caste in India was due to the physical isolation of the country, combined with the other factors. Parallel developments had taken place in early Greece and Rome but the social groups had not crystallized into castes. In India, the vastness of the country and the physical isolation of the peninsula, led to a rigid form of society.

Sénart overlooked the existence of a pre-vedic high level of culture; and the fact that the caste structure, while similar in general nature, varies somewhat peculiarly in the different provinces with regard to purity or impurity of certain groups of castes. The fact that caste was not formed in Nepal or other outlying areas, indicates that physical isolation is not sufficient to lead to caste formation under the conditions noted by Sénart.

Recently Dr. Hutton has put forward the view that the necessary factor for caste segregation is to be found in special magical qualities peculiar to certain social groups as found in the Naga Hills. He has concluded that the fear of mana (as he terms it) of one group working harm on, or neutralizing, the mana of another group, has been responsible for isolation of castes in India. The author however pointed out, by quoting from the writings of Dr. Hutton himself, that the said social groups in the Naga Hills have no bar on intermarriage or interdining. The bar is with regard to occupation. The facts noted by Dr. Hutton are linked up really with the social unit "the household" and were explained by the author on the basis of household exogamy. The developed forms of exactly similar customs in orthodox Hindu society were noted and it was shown how both groups of facts fit in the same general explanation, which is different from that of Dr. Hutton.

The author then considered the different factors that promote solidarity of social groups or lead to their disruption and isolation in the case of contact of people. After discussion the various factors, (*a*) economic, (*b*) religious, (*c*) social, and (*d*) political, the author came to the conclusion that the economic rivalry of two or more different sets of cultured immigrants, competing for dominance, and influence with the earliest or earlier comparatively uncultured people, has been the most important factor in the isolation of social groups in India. If the competing group had, each of them, superior knowledge of certain arts and crafts, these would be jealously guarded; intermarriage and interdining among the groups of their friends, the semi-civilized people of mixed descent, would be discouraged (and also abstained from) by the groups themselves in their own interest. If in addition the gods were different, the rules of sexual relations opposed, and the food also varied, the contempt and hatred for each other arising out of economic rivalry would be further intensified and would make social isolation complete. Difference of colour and the vastness of the country would be additional factors promoting it.

When some sort of equilibrium was reached, a survey would be made. To such an observer of ancient times, the important factor in determining social position would be (*a*) the affiliation to this or that social group of cultured immigrants, and (*b*) admixture of blood in patrilineal or matrilineal line, with aborigines or immigrants. These questions in fact bulk large in the Hindu Dharmaśāstra in discussions of caste hierarchy.

Further, if one group of immigrants and their friends obtained mastery in one place, and the other group in another, while some kind of compromise was arrived at in a third area, perhaps in the face of a common enemy, the relative position of the different social groups would vary from one such province to another.

The detailed analysis so far made is in agreement with the theory put forward in this paper. The conclusions regarding immigrations of cultured people and the results of their contact were summarized and were noted in the agenda paper.

Mr. *M. M. Bose* remarked :—

We are thankful to Mr. Chattopadhyay for taking up such an interesting subject as the history of Indian Social Organization. It is evident from the summary that he has given and from the portions of the paper read out by him that his treatment of the subject has been very ample. It also shows that he is gifted with much power of independent thinking as well as a large fund of imagination. But on such a vast subject there is necessarily much room for difference of opinion. It would not be fair to discuss these differences at this stage. We are eagerly awaiting the publication of his paper and then it will be time to offer any criticisms called for.

3. CHARU CHANDRA DAS GUPTA.—*A few types of Sedentary Games from Bihar.*

The author, while on an archæological tour in Bihar and the United Provinces in 1934, collected accounts of different sedentary games. He briefly describes and discusses eight such games not yet noticed by previous investigators. The names of the games are :—

1. Bāra-guṭi.
2. Nāo-guṭiyā.
3. Bāghā-guṭi.
4. Rām-tir.
5. Biś-guṭiyā.
6. Bāra-guṭiyā.
7. Nāo-guṭiyā-baiṭhānekā.
8. Sāt-gharoyā.

Mr. *Das Gupta* briefly described the nature of the eight games.

Dr. *A. M. Heron* remarked :—It may be asked what interest grown up and learned people can have in studying these simple games played by children or simple people. I would like to draw attention to the excellent analysis of what such games are as found in the great *Encyclopædia of Religion and Ethics*. The matter is so well and so tersely put that the extract bears reading out in full. The writer of the article (E. Sidney Hartland) says :—'A game is an organised occupation, undertaken by two or more persons, the primary intention of which is not utility but pleasure or pastime by means of the exhibition of the skill or good fortune of the players. It proceeds according to definite rules, and sometimes necessitates special instruments or apparatus. Games may be broadly divided into three classes—games of skill, games of chance, and games of imitation. The rules of games of skill are framed to bring out the various qualities, physical, mental, or moral—strength, agility, quickness of the senses, rapidity of calculation and induction, endurance, patience, and so on—of the players. Games of chance, on the other hand, regard only the luck of the players, and are decided by events, such as the fall of dice, over which they have no control. The rules, therefore, are arbitrary conventions, designed to emphasize coincidences. Many games combine the elements of chance and skill in varying proportions. In games of imitation the rules are prescribed by the actions to be imitated —limited, however, by certain conventions appropriate to the circumstances of the players; and the result is measured by the verisimilitude of the performance as thus limited. Such games involve the germ of

Drama. Both in games of chance and in those of skill there is contest. In games of imitation there is often little or none; and the pleasure sought is attained by co-operation, rhythmic movements, and song.

Games as thus defined are social institutions, owing their origin to the inherent restlessness of human beings and the necessity for constant use and practice in order to promote the development and preservation of their physical, mental, and moral powers. They enter very early into the life of the individual, and are of incalculable value in the training of children for graver pursuits of adult years. To the adult—especially the adult savage—they are little less important; and from the lowest plane of culture upwards, games either in the form of contest or of rhythmic movement (dances), are among the commonest activities'.

Mr. *M. M. Bose* said:—

Besides the utility of the games mentioned in the *Encyclopædia of Religion and Ethics* as read out by our learned Chairman, it may be pointed out that they also throw light on the character of the people who play them. They are thus of considerable interest from the Social and Anthropological points of view.

The following communication was made:—

1. JOHAN VAN MANEN.—*The word* 常 *in the Tao Te King.*

The Tao Te King is perhaps the most subtle Chinese philosophic work. It is small in size, consisting in its various recensions of between about 5300 and 5700 characters. Of these characters 105 account together for nearly 3900 of the total. A careful determination of the value of these 105 characters will furnish the basis for the right understanding of the book.

One of these characters is Ch'ang which occurs 31 times. For this one word even the most qualified translators have used a great number of synonyms.

Julien has: eternal, eternally, constant, constantly, constancy, always, unchangeable and enlightened. Legge has: enduring-and-unchanging, constant, constantly, always, ever, regular-unchanging-rule, in-its-regular-course, invariable, unchanging. Others, such as von Strauss, de Harlez, Parker, Grill, Wilhelm, Wieger, vary similarly or more. The dii minores are generally worse.

The question is to find a single European word which fits all passages.

The fundamental conception seems to be 'invariable (in manifestation)'. Constant in English does not quite fit everywhere but its equivalent in Latin might perhaps do. 'Eternal' goes beyond the meaning, amongst others because there is no question of time, but of manner. A German word that has been suggested is 'beharrlich' (von Strauss, Weiss). A Latin equivalent might perhaps be 'jugis'. A Sanskrit equivalent is 'nitya', though the latter term has also been wrongly confused with eternal or permanent in European translations. A very near English concept is 'steady', though this word is too colloquial for application in all passages. The same applies to German 'fest' or Dutch 'vast'. German stät, stets, beständig, approach it. Semasiologically or pictographically the Chinese term is probably equivalent to 'standard', but this English word cannot without strain be used in all contexts. What is necessary is to find a term which is the philosophical and solemn equivalent of the more practical and common 'steady' or 'stable', in other words a single term for 'tranquillus saevis in undis', or for 'constancy throughout fleeting and changing appearances'.

Serene and untroubled may also be thought of.

Mr. *Van Manen* said that the problem of translation was a major subject by itself with an extensive literature. He would not set out the theory of this problem but deal only with the specific instance offered by the Tao Te King. The subject was thus narrowed to the fourth degree: translation in general; from the Chinese; from an archaic period, about 500 B.C.; of so distinctive and individualistic a writer as Lao Tsze. He would for the moment accept the traditional view of the authorship and date of the Tao Te King. Since the first anonymous translation into Latin, presumably by a Jesuit priest, and probably dating from about 1788 (a translation not yet published), about 50 European translators have rendered the complete text. Besides, dictionaries, grammars and anthologies, as well as essays and works on Chinese religion, contain a large number of isolated fragments translated in addition.

The translations are of most unequal value and authority. They may be grouped into four main classes. First those of professional sinologists, some 20 in number. Next, those by serious students of religion or philosophy who had studied this special text *ad hoc*, about 12 in number. Thirdly, translators of previous translations from one European language into another, only a few. Fourthly, those of the amateurs, a most diverse group made up by a few serious and capable enthusiasts or dilettantes in the original good sense of the word but containing artists, cranks, idealists, individualists, intuitionists, occultists, phantasts, sentimentalists, syncretists and theosophists, of every hue and quality.

Amongst all these groups there is a bewildering variety of merit and demerit. Not all sinologists had given consistently good work and not all dilettantes consistently bad work. A case in point is where one single non-sinologist had given the correct rendering against a mistaken one of all 49 others, professionals included. Amongst the professionals the speaker preferred on the whole, as a basis for further study, Stanislas Julien (as a grammarian, not as a philosopher), James Legge (for scholarly honesty, but not for beauty or spirit), Carus (for journalistic flair and handy typographical disposition), Richard Wilhelm (for a spiritedness and generally high level of feeling).

The translations of de Harlez and Wieger he considered as very unequal, free and unreliable in spots, but also containing isolated happy or suggestive renderings. De Groot, great scholar though he was in his own line, has been responsible for some very queer interpretations.

In the second group he found useful matter in von Strauss (many of whose improvements had been lost again by subsequent workers), Grill, Ular (some brilliant isolated points, but, especially in the German edition, a notable attempt to do justice to the rhythmic structure of the text, neglected by nearly all others), and some others.

In the dilettante group the translation by de Pouvourville (and its subsequent re-translation into Bulgarian) was something between a bad joke and a tragedy; the one by Mac Innes something of a like nature; the one by Dallago haughty and entirely lacking in perspective of the task. From some of the others here and there something useful—perhaps not so very much, but not unimportant—might be gleaned. Konissi's Russian translation was somewhat of curiosity: 'Tolstoi collated my translation with those in English, German and French, and settled the text of every chapter '.

The artists represented amongst the translators contributed some lessons in the rendering of the formal beauty of the original.

A future serious study of the Tao Te King, after the termination of the first century of European effort at understanding the book, would no longer be able to dispense with a rigidly philological, as against a purely grammatical study of the text. In Chinese philology there was an almost complete absence of what the Germans call philological 'Vorarbeiten', preliminary studies and investigations, with regard to ancient Taoism. Books like Teichmüller's *Neue Studien zur Geschichte der Begriffe* with regard to Heraclitus, do not exist with regard to Lao Tsze.

The surviving remnants of Heraclitus aggregate to perhaps one-fifth of the extent of the Tao Te King. But what a contrast between the nature of the literature concerning Lao Tsze and that concerning Heraclitus! On the one hand a laborious quest for essentials and precise definition, on the other a profusion of polite amiabilities and ethical platitudes, with here and there some historical fact thrown in. In the one case a dialectical and philosophical treatment, on the other a predominantly grammatical one with moralising added. We had, however, not to overlook what von Strauss, Grill and Dvořack have contributed in this direction. Even von Plaenckner's intuitions went in the right direction, however completely his results have been damned by scholarship. Ethically his contribution has value. Borel has done sentimental and artistic justice to some terms, as Haas, Medhurst and others have done theologically. But a complete critical valuation of all workers would lead too far.

As set forth in the preamble to the communication, about one hundred Chinese words constitute the marrow of the Tao Te King. These have to be studied intensively. As a preliminary we need a work like Jacob's concordance to the Upanishads or Haas' concordance to the Bhagavad Gītā. The speaker had compiled such a concordance for himself. There exists a Chinese one which he had not been able to obtain. (Lao chieh Lao, by Ts'ai T'ing-kan, Shanghai, 1922.) He had solved to his satisfaction the specific meaning of a dozen Chinese words in Lao Tsze's usage which had led him to what he considered new and important conclusions. He did not maintain that a Chinese word in the Tao Te King should be indiscriminately or mechanically compared in all its occurrences. There were at least five distinct levels of use of words in the Tao Te King. First, there is the ordinary meaning of ordinary use. Second, there is the modified meaning when used in a binom. For instance it seemed to him, that the whole elaborate discussion concerning the meaning of the term 無 為 finds its very simple solution by understanding the binom not as non-action but as quiet, restful, reposeful, or even unobtrusive. Third, there is the use of archaisms peculiar to Lao Tsze. Fourth, there are traces of forgotten idioms. Fifth, there is the use in rhythmical utterances which may perhaps prove to be oracular quotations in a language not that of Lao Tsze himself.

Now coming to the immediate subject announced in the title of his communication, the speaker stated that he had drawn up a comparative table of the translation of the word ch'ang (occurring 31 times) in the renderings of some 20 different translators. It had to be noted that the word occurred in some places in conjunction with the words 久, 長, and 壽, which caused modification in its meaning. He had arrived at the conclusion that instead of using half a dozen or more different words as the translation of the word ch'ang, one single word should be chosen, as one single conception was intended. This conception was exactly equivalent to the one expressed by the Sanskrit term nitya and, though inelegant, the English word steady in its various formal modifications (steadily, steadiness, etc.), or the German word beharrlich, might provisionally be chosen to represent it.

He admitted that he would like to find a still more satisfactory English equivalent. What was however of supreme necessity, was to do away with the present fluctuating way of translation, rendering the majority of single Chinese words each by a great number of different European words throughout this brief, though deep and wise, scripture. After a reliable pattern-translation has been evolved, which will necessarily be artificial, stiff and rigid in the first instance, it will be the task of word-artists to convert the rigid frame into a living and flowing organism with the maximum possible conservation of internal terminological relations.

In the work of translation of texts like the Tao Te King, four elements have to co-operate to obtain an ideal measure of success:—

1. Sinology, a capacity to deal with the Chinese language as such, and under the special aspects required.
2. Philology, a capacity to deal with a written text in accordance with scholarly methods and canons.
3. Philosophy, a capacity to deal with conceptions and their relations to the words used to express them.
4. Artistry, a capacity to deal with and to transpose artistic form.

As yet no single scholar showing outstanding capacity in *all* four directions has dealt with the Tao Te King. Probably—as genius is rare—a combination of talent would be needed for the production of a really first-class translation of the work.

Mr. *K. P. Chattopadhyay* remarked that from what he had heard it appeared to him that the word ch'ang indicates dynamic invariability, not static immutability. The Indian philosophical term nitya conveys this exactly. There are inherent difficulties to translation of philosophic terms from the language of one civilization into that of another. Language develops through linking sound symbols (or pictographs) with mental images. Abstract ideas come to be represented by a process of elimination of concrete associations. A word signifying an abstract idea can convey the particular sense in which it is to be taken only in its proper milieu and to those who are familiar with it. To translate it, that is to say, to replace it by another sound (or similar symbol) belonging to a different culture, it is necessary to get hold of a word used in a similar thought environment. Identity of milieu is rare; hence exact translation is very difficult.

There exists another set of symbols which express ideas without such limitations or restrictions to the milieu in which they have developed. The symbols used in the mathematical sciences, and natural sciences in general, are capable of use, by people of different cultures, without the possibility of misunderstanding ideas. A wider use of such symbols is likely to reduce the difficulties in the way of translation of philosophic works.

The Chairman announced that no meeting of the Medical Section had been arranged to be held during the current month.

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AUGUST, 1935.

An Ordinary Monthly Meeting of the Asiatic Society of Bengal was held on Monday, the 5th, at 5-30 P.M.

PRESENT.

SIR LEWIS FERMOR, KT., O.B.E., D.SC. (Lond.), A.R.S.M., M.INST.M.M., F.G.S., F.R.S., F.A.S.B., President, in the Chair.

Members :

Auden, Mr. J. B.
Barwell, Lt.-Col. N.
Bent, Mr. W. A.
Bogdanov, Mr. L.
Brahmachari, Sir U. N.
Brown, Mr. Percy
Chakravarti, Mr. C.
Chatterjee, Mr. P. P.
Chatterjee, Dr. S. C.
Chattopadhyay, Mr. K. P.
Coulson, Dr. A. L.
Driver, Mr. D. C.
Ezra, Sir David
Fox, Dr. C. S.
Gee, Mr. E. R.
George, Mr. J.
Ghose, Mr. T. P.
Heron, Dr. A. M.
Hosain, Dr. M. Hidayat
Hobbs, Mr. H.
Hora, Dr. S. L.
Jameson, Mr. T. B.
Manen, Mr. Johan van
West, Mr. W. D.

Visitors :

Acharji, Mr. M. N.
Bagchi, Mr. D.
Barwell, Mrs.
Bose, Mr. H. K.
Das, Mr. K. N.
Fermor, Lady
Fox, Mrs.
Gee, Mrs.
Hunt, Miss S. D.
Mukerji, Mr. D. D.
Spencer, Dr. E.

The minutes of the last meeting were read and confirmed.

The General Secretary reported receipt of seven presentations of books, etc., which had been placed on the table for inspection.

The General Secretary drew the attention of those present to the valuable presentation to the Society of a copy of the official German record of the International Policies of the great European Powers from 1871–1914 in 54 volumes together with 9 volumes of summaries and a chronological list of contents. The donor was a member of the Society, Baron Ow-Wachendorf, the local Consul-General for Germany, to whom the Society's grateful thanks had been conveyed.

The following candidate was balloted for for election as an Ordinary Member :—

(17) *Shattock, John Swithun Harvey*, B.A. (Oxon.), I.C.S., Assistant Private Secretary to His Excellency the Governor of Bengal, Government House, Calcutta.

Proposer : A. M. Heron.
Seconder : Johan van Manen.

The General Secretary reported the following loss of membership, since the previous meeting, by death :—

(7) Khan Bahadur Abdul Ghaffar (An Ordinary Member, 1926).

The General Secretary reported the following loss of membership, since the previous meeting, by resignation :—

(16) B. C. Hobbs (An Ordinary Member, 1935).
(17) A. T. Weston (An Ordinary Member, 1934).
(18) Miss Gerta Hertz (An Ordinary Member, 1933).

The General Secretary reported that there had been no lapses of election, since the previous meeting, under Rule 9.

The General Secretary reported that there had been no withdrawals of applications since the previous meeting.

The Chairman announced the result of the ballot for the election of an Ordinary Member and declared that the candidate had been duly elected.

The Chairman announced that no meeting of the Medical Section had as yet been arranged to be held during the current month.

The Chairman announced that there would be an Ordinary Monthly Meeting in the recess month of September, as usual on the first Monday, the 2nd, of the month.

The following papers were presented :—

1. CHINTAHARAN CHAKRAVARTI.—*The Cult of Kālārkarudra* (*Caḍaka-pūjā*).

The paper notices the characteristic features of the worship of the Śivaite deity Kālārkarudra who, along with various other little-known deities, is worshipped on the occasion of the Caḍaka-pūjā—one of the most important popular festivals of Bengal. Descriptions of these deities as found in different manuals of worship are given and an enquiry is made into the antiquity of these deities, as also of the festivities connected with them, on the basis of references to them in old Indian literature.

Mr. *Chintaharan Chakravarti* said :—

The festivities and external observances connected with the cult as observed in the month of Caitra (March-April), have already been described by a number of students. The present paper seeks to describe the worship proper, not described as yet, the chief characteristics of which include :—

1. The prominent part taken by non-Brahmins, including members of the lower castes and untouchable communities, in various rituals connected with the cult. It is these people that serve as Sāṅgas, Bālās or Sāiṅs, as they are differently called, and the most interesting piece of their business is the salutation of the deity in various postures to the accompaniment of various tunes of music. It is these people who offer Śivāvali or the sacrifice to the she-jackal in which the service of a Brahmin priest is not required. They also perform the *pāṭsnāna* or *ghāṭsnāna*—the pompous bathing of a plank made of the *vilva* tree and a number of cane-creepers bound together—probably symbolic representations of Śiva and Pārvatī.

2. The worship of deities little known to students of Hindu iconography, like Kālārkarudra—the principal deity; Nīlacaṇḍī—his female consort; Hājarā, Kedāra, Gambhīra and Nīla. The worship of these two last-mentioned deities appears to have given the names *Gambhīrā* and *Nīlapūjā* to the festivities in some parts of the country.

3. The sacrifice of the goat to the principal deity who appears to represent an aspect of Śiva. Ordinarily the sacrifice of the goat to Śiva is prohibited.

As to the antiquity of the feast it may be pointed out that festivities similar to those observed on the occasion of the Caḍaka-pūjā are referred to in works like the *Bṛhaddharmapurāṇa* and in extracts which are attributed to the *Liṅgapurāṇa* and the *Brahmaraivarta-Purāṇa.* The principal deity of the cult is described in the *Ṣaṭkarmadīpikā*—a tantric digest by Kṛṣṇa Vidyāvāgīśa. He is mentioned but not described in the *Kālāgnirudropaniṣad*—a minor Upaniṣad. The *Kālarudratantra*, of which there is a MS. in the Society's Library, refers to the spouse of this deity and she is named Kālarātri whose worship is described in many works. The absence of references to the deity or to the festivities in the works of Raghunandana and Govindānanda (15th-16th centuries) might be regarded as an indication of the fact that the cult was not popular among high-caste people, a survey of whose religious rites and practices is contained in those works.

These rites and festivities may be survivals of similar practices of some sect of the Pāśupatas, some of whose views and practices, which were apparently obnoxious, came in for ridicule and condemnation in such old works as Śaṅkara's commentary on the *Brahmasūtras* and in the writings of the Jains like the *Yaśodharacarita* and the *Bharaṭakadvātriṁśikā.*

Col. *Barwell* enquired :—

In view of the time of year suggested (April-May), I am wondering whether something I have myself witnessed in Bengal may not be part of the ritual of this cult. What I have often seen in villages—indeed not far from Calcutta itself—is this : a group of five or six patently low caste people move with a leader and a drummer from one particular kind of tree to another of the same sort. Here, on a signal from the leader, they prostrate themselves head towards the tree stem ; some sort of incantations are pronounced and then some branches (i.e. leaves) are pulled off the tree. This having been done and the branches spread on the ground, they are stamped or danced upon by the worshippers. The party then moves off passing any tree not of the same kind, till another is found when the ceremony of worship and dance is repeated. Can this be a ceremony connected with the cult of Kālārkarudra ?

Mr. *Chakravarti* replied :—

The ritual referred to by Col. Barwell forms part of the elaborate festivities consisting of dances, music, mimicry and various kinds of physical torture observed on this occasion. It is known as *Khājurbhāṅgā* (tearing off the leaves of the datepalm tree) in Faridpur in Eastern Bengal. A group of Bālās (devotees) march to the tree. The leader of the party prostrates himself before it, walks around it and embraces it a number of times and offers incense to it. Then he climbs it, spreads out the erect leaves, dances on them, tears off the youngest leaf and plucks bunches of fruits, all to the accompaniment of the beating of the drum and the utterance of incantations. The leaf and fruits are then carried to the place of worship and at the end of the worship are distributed among the people who treasure them as they are believed to avert lightning from the houses in which these are stored. A similar practice in some parts of the country is known as 'Phala-bhāṅgā "or falling upon the branches of prickly plants spread on the ground ".'

(*See*: *An alphabetical list of the feasts and holidays of the Hindus and Muhammadans—Imperial Record Department, Calcutta*, 1914, *p*. 14.)

Mr. *Van Manen* said :—

In the June meeting of the Society we had the pleasure of listening to Mr. Chattopadhyay who spoke to us on the Caḍak festival in Bengal. The speaker treated the subject from the standpoint of the anthropologist, describing the ceremonial actions connected with this strange festival. He came to the conclusion that the festival was very old, 'pre-vedic' as he preferred to characterize it. If this conclusion be true the festival and the ceremonial must have a history. In his paper Mr. Chattopadhyay did not deal with this aspect of the subject, but confined himself to a description of present-day practice. Now Mr. Chakravarti has given us a valuable supplement by pointing out that there is a theory connected with the festival, with its own literature, of which he quotes three ritual manuals. Whereas Mr. Chattopadhyay connected himself with the statement that the ceremony is connected with the vernal equinox, Mr. Chakravarti adds that the festival belongs to the cult of a curious triune deity styled Kālārkarudra, i.e., Time, Sun and Storm(?). The two papers complement each other in a most happy manner. It is necessary to have, on the one hand, a correct description of a folkloristic phenomenon as it actually happens, but on the other hand it is equally necessary to attempt to trace the history of such a phenomenon in order to find its rationale. In the non-classical Sanskrit and vernacular literatures many traces are preserved of old cultural traditions which may have greatly changed and perhaps degenerated throughout the course of the ages, and it is to be hoped that in the future many instances will occur of a same happy combination of, first, a careful description on the basis of actual observation of some cultural remnant, and, second, a report on the literary and historical data, placing the observed fact in proper perspective.

Mr. Chakravarti has shown that this Cadak festival consists of two distinct elements of which the one (ceremonial acts) appeals predominantly to the eye, whereas the other (the contents of the spoken word connected with the pūjā) appeals predominantly to the ear. Though the former is more easily appreciated than the latter, the latter is no less important than the former. They represent as it were the inner and outer elements of the entire ceremony. In the first description of the festival the second element was only alluded to, but not described or analyzed. This is onesidedness, which might easily lead students to wrong conclusions. In the present paper our speaker has supplied the element that was lacking in the previous paper, and the two halves now give a complete picture of the whole, which would not be intelligible if either of the two were lacking. Another point of interest is that Mr. Chakravarti holds that certain general principles, dancing, music, mimicry, and self-torture, are essential to the ceremony, but that the local applications of these vary locally and are therefore accidental.

These two points are important and enter a *caveat*, not only with reference to the premature interpretation of the ceremony discussed this evening, but in analogous cases also.

2. M. S. MANI.—*Notes on some Indian Gall-forming Psyllidæ (Homoptera).*

In this paper the galls of several species of Psyllids are redescribed. *Megatrioza vitiensis* (Kirkaldy) is recorded as causing the pustule-like galls on leaves of *Eugenia jambolana* (D.C.). *Megatrioza hirsuta* (Craw.) is recorded as causing galls on different species of *Terminalia*, which were previously believed to be produced by Cynips. A partial key to some gall-forming species of the genus *Pauropsylla* (Rubs.) is given. Brief biological notes are also included in a few cases.

In the absence of the author the paper was taken as read.

After the reading of the papers, the following exhibits were shown and commented upon :—

1. A. L. Coulson.—*The Perpeti Meteorite.*

At 11 p.m. on the 14th May, 1935, a meteoric shower occurred in the vicinity of the villages of Perpeti (23° 19′ 30″ : 91° 0′ 0″), Bhateswar, and Pilgiri under the jurisdiction of the Chandina police station, and near other villages under the police stations of Kachua and Hajiganj, in the Tippera district of Bengal.

Eleven pieces in all were recovered. The total weight of all specimens is 21,942·57 grams; the largest stone weighs 6,689·85 grams. The specific gravity of the meteorite is 3·554. It is being analyzed by Mr. P. C. Roy.

The meteorite, which has been registered as No. 298, Stone, in the collections of the Geological Survey of India, has been classified provisionally as No. 14, White Chondrite (Cw) in Brezina's terminology. It has a white, rather friable mass with few, chiefly white, chondri. It will be described fully in a forthcoming paper in the *Records* of the Geological Survey of India.

The stones are exhibited with the permission of the Director, Geological Survey of India.

Dr. *A. L. Coulson* said that meteorites are objects of great scientific interest, not only on account of their rarity but also because of their chemical composition. About four falls of meteorites are recorded annually but, making due allowance for the uninhabited areas of the globe and the vast oceanic areas, it has been stated that the average number of meteorite falls cannot be much less than one per *diem*.

The first mention of the Perpeti meteoric shower was in the Calcutta issue of the Bengali paper *Ananda Bazar Patrika* of the 25th May, 1935, in which it was stated that the fall occurred on the 31st Baisakh (14th May) at 11 p.m. in villages under the jurisdiction of the police stations of Chandina, Kachua and Hajiganj in the Tippera District of Bengal. This notice was brought to the attention of the Geological Survey of India by Mr. P. C. Roy, Assistant Curator, and a letter was immediately issued to the District Magistrate of Tippera requesting him to be so kind as to investigate the report and, if possible, to obtain and to send to the Geological Survey such meteorite specimens as he was able to collect. He was reminded of the orders of the Government of India contained in a circular letter issued in 1925 through the agency of the Geological Survey of India, that all meteorites falling within the confines of British India are the property of the Government of India and should invariably find a resting place in the Geological Section of the Indian Museum, Calcutta.

Mr. E. W. Holland, I.C.S., District Magistrate of Tippera, was successful in obtaining and sending to the Geological Survey of India the eleven specimens of meteorites which you now see exhibited at this meeting. It would appear, however, from the reports forwarded by Mr. Holland, that possibly other meteorites that fell in the Kachua police area, have been collected and kept awaiting instructions to send them to the Indian Museum. All those exhibited to-night were collected from the Chandina police area. It is to be hoped, therefore, that Mr. Holland will be successful in obtaining other specimens.

The total weight of stones recovered from the Chandina police area is almost 22 kg.; the largest stone weighs a little less than 6,700 grams. This total weight is large compared with that of other falls and ranks third of all falls of meteorites recovered in India and in the possession of the Geological Survey of India. The largest fall is the Merua meteorite totalling almost 71½ kg. for five pieces; next is the Kuttippuram meteorite of almost 38½ kg. The Karkh fall, described by your President, is just exceeded by the Perpeti fall, being a little over 21,700 grams.

The usual light and sound phenomena accompanied the fall. The reports received mention a sound like 'three bombs' and all agree in stating that there was a bright light in the south-west. The direction of movement of the shower appears to have been from the south-west to north-east. The Perpeti shower revives memories of the very interesting Dokachi meteoric shower of 1903 described by your President. In the Perpeti case, however, it is not possible to state with certainty that the largest stones were carried furthest in the direction of the flight of the shower on account of their greater mass and consequent greater momentum. This was very well shown in the Dokachi fall.

One may refer conveniently here to the usual question, did we have one stone entering the earth's atmosphere which was disrupted almost immediately into the constituent stones of the Perpeti meteoric shower of which the specimens in front of you are examples? Or did the constituent stones of the shower enter the earth's atmosphere as separate individuals? There seems little doubt that if, as is most possible, there was one parent stone, then that stone was disrupted almost immediately it entered the earth's atmosphere in its rarefied outer regions. The stones all have thin crusts of apparently the same thickness. There appears to be a total absence of secondary crusts which are derived when the stones are disrupted at a late stage in their passage through the atmosphere and the heat generated by the resistance of the earth's atmosphere to their passage through it at a reduced speed compared with their original planetary velocity, has been insufficient to fuse the fresh surfaces regularly and to the extent of the crust on the older surface.

Another interesting point with regard to the stones of the Perpeti shower is the total absence of anything suggesting what are termed flow lines, the corrugations on the crust formed by air currents met by the stones in their passage through the atmosphere. The shapes of two at least of the stones are worthy of attention, one being similar to a truncated spheroid and the other rather tetrahedral in form. One can easily imagine these stones travelling through the atmosphere with their rounded and apical ends, respectively, pointed generally in the direction of flight.

The eleven specimens represent ten individuals more or less completely covered with crust, the two smallest stones obviously having been broken apart by human agency after their recovery. The largest stone appears to have lost quite an appreciable quantity of its mass through the same agency.

Meteorites are classified generally into two main divisions, stones and irons. The Perpeti meteorite falls into the stone class and is composed mainly of silicate minerals with subordinate metallic minerals. It is a rather friable, white stone on a fresh fracture, containing few chondri. The structure is very well illustrated in the thin sections of the smallest of the stones which may be examined through the microscope here by means of transmitted light. Chondri are those peculiar rounded grains or spherules which have no exact counterparts in igneous rocks.

The chief metallic minerals present are nickel-iron, probably in its various alloys kamacite, tænite and plessite, steel-grey by reflected light; troilite, the sulphide of iron, bronze by the same light, which is regarded as being practically the equivalent of pyrrhotite; and magnetite, very black and not so abundant as the troilite and nickel-iron. The chief silicate minerals are olivine, the most abundant; enstatite and clino-enstatite, approximately equal in distribution; and a little plagioclase felspar. A certain amount of what is probably apatite, the phosphate and fluoride or chloride of lime, also occurs.

The meteorite has been classified as a White Chondrite, Cw, according to Brezina's classification. It will be described by me in a paper to be published in the *Records* of the Geological Survey of India, in which Mr. P. C. Roy's analysis will be included. It will afterwards be exhibited in the meteorite collections of the Geological Survey of India in the Indian Museum which, it may interest you to learn, rank among the best in the world, being inferior in numbers and material probably only to the British Museum in South Kensington and the Field Museum of Chicago.

The President said that it was always pleasant to welcome visitors from outer space and, therefore, we were grateful to Dr. Coulson for his exhibit of the eleven stones that fell during a recent meteoric shower at Perpeti and adjoining villages. The President had himself many years ago taken an interest in a similar shower of stones in Eastern Bengal, described as the Dokachi meteorite, to which Dr. Coulson has referred. The chief interest of the Dokachi fall was the fact that the stones of greater mass had travelled further along their path than those of smaller mass due, of course, to their greater ability to overcome resistance of the air. This indicated that these fragments were all portions of one meteorite that had broken up after its entry into earth's atmosphere.

Dr. Coulson had fully investigated the same point with reference to the Perpeti meteorite, and although the evidence was not so clear, yet there were indications of a similar distribution, making it probable that this shower of meteorites also had resulted from the break up of a single meteorite.

Mr. *W. D. West* asked if more than one light was seen ?

Dr. *Coulson* replied that only one light was seen in a south-westerly direction. This would seem to be an additional proof that only one parent meteorite entered the earth's atmosphere and that this was disrupted with emission of heat and light almost immediately into the stones now exhibited. In the cases of other showers, however, more than one light has been recorded.

Mr. *H. Hobbs* asked what was the size of the largest meteorite known ?

Dr. *Coulson* replied that the largest single specimen preserved in any museum is the 'Ahnighito' iron meteorite from Cape York, Greenland, which was transported by Admiral R. E. Peary to the American Museum of Natural History in New York. Its weight is 33 metric tons. The largest meteorite known is the Hoba iron meteorite of South-West Africa, weighing 60 metric tons, which is still *in situ*. Borings have failed to prove the existence of any large mass in the very large meteor crater near Cañon Diablo in Arizona.

Sir *U. N. Brahmachari* enquired if the elements in meteorites are the same as those of the earth ?

Dr. *Coulson* replied that the elements are the same, but there is a larger proportion of iron and nickel than in the rocks of the earth's crust. The earth's interior, however, is denser than its exterior and its composition is more akin to that of iron meteorites.

2. A. M. HERON.—*An artificial 'natural' Freak from China.*

In a previous meeting of the Society Mr. Van Manen exhibited three large ferruginous concretions, composed of limonite and hæmatite, which had been acquired by him from a Chinese monk. These specimens were said to have come from some unspecified locality in China. Limonite is a common ore of iron, and is formed in meadows and marshes. It seemed likely that these specimens had been formed by the accretion of limonite around some substance which might since have disintegrated or been artificially removed, leaving the hollow shell of limonite.

The interest of the specimens lay in their unusual size, and their hollow core.

The Chinese love such freaks of nature and look upon them as objects of art. In olden times natural freaks had to be reported to the Emperor, and in Chinese literature there are frequent notices concerning such objects.

By mischance one of the three concretions recently fell down and broke into a number of small fragments. Advantage was taken of the circumstance to examine the structure of the material more closely than could be done on the unbroken samples.

Drs. Fox and Coulson and Mr. Gee have examined with me the fragments of this curious object. It appears to be composed of lime, calcium hydrate, with a certain amount of carbonate such as always develops in lime mortar after setting and exposure to the air for some months. It must therefore be artificial, and this is confirmed by the fact that it consists of two or more uneven layers of lime, $\frac{1}{8}$ to $\frac{1}{4}$ inch in thickness which are separated by a thin film of fibrous material suggestive of the remains of Chinese paper.

In the middle of one of the layers is a small fragment of carbon with a shining couchoidal fracture, like cannel coal.

It would seem that a layer of liquid lime mortar had been poured over a crude baton-shaped mould, thin paper had been laid on it, and one or more layers again poured on and allowed to set with a rough knobbly surface, no attempt having been made to smooth or finish it off neatly. This intentional lack of finish is difficult to reconcile with the habitual care of the Chinese artificer.

The outer surface has been heavily but unequally impregnated with limonite, hydrated oxide of iron, to a depth of $\frac{1}{4}$ inch in places, in others a mere film, and this has also spread along the surface of the junction between the outer layer and the one below it. The iron oxide may in part have replaced the lime and part of it has dehydrated to micaceous hæmatite.

Dr. Fox suggests that it may be a filter to purify chalybeate water, the iron removed impregnating and replacing the lime, and also points out that it would soften water in the general manner that Clarke's process does with lime water. There the water is brought to the lime and not the lime water to the hard water as in Clarke's process. It is hoped that some light may be thrown on this puzzling object by exhibiting it to the Society.

Dr. *Heron* explained the exhibit in terms substantially covered by the paragraph contained in the meeting programme.

The President recalled that the specimens discussed by Dr. Heron had been exhibited at a previous meeting on the assumption that they were products of nature, and their similarity thereto was so great that they have been accepted as ferruginous concretions by several geologists who had examined the specimens. The accident, therefore in Mr. Van

Manen's household, which had led to one of these specimens being broken, must be regarded as a fortunate one. The purpose of bringing this matter again before the Society was in order to elicit opinion from members concerning the origin of these curious bodies which, it appeared from Dr. Heron's account, must certainly be regarded as of artificial origin. If they had been made deliberately then they were another testimonial to the extraordinary skill of the Chinese in that they had succeeded in producing objects which have been accepted by geologists as natural products.

Dr. *E. Spencer* remarked :—

With regard to Dr. Fox's suggestion that these hollow concretions may have been used as primitive water softeners, I do not think that this is probable for the following reasons.

The use of lime (CaO) removing temporary hardness from water has to be very carefully regulated. The soluble calcium bicarbonate $Ca(HCO_3)_2$, which constitutes the temporary hardness of water, may be reduced to insoluble carbonate $CaCO_3$ by the addition of one equivalent of lime (CaO) according to the following equation :—

$$CaO + Ca(HCO_3)_2 = 2CaCO_3 + H_2O.$$

The result is that two equivalents of calcium carbonate are thrown out of solution leaving the water free from temporary hardness.

If, however, an excess of lime CaO is added it goes into solution as alkaline lime hardness which is just as objectionable as the original temporary hardness.

A filter apparatus using a lime container as a filter medium would not be able to control the amount of lime added, and the filtered water would thus be liable to contain at least as much hardness due to excess free lime, as the original temporary bicarbonate hardness.

My view is that if these concretions consist essentially of lime, as stated by Dr. Heron the article has probably been produced accidentally as a bye-product of some manufacturing process, the lime having deposited round a hollow surface.

Before any further pronouncement can be made on the subject it will be necessary to make a detailed chemical analysis of the substance.

[In a subsequent written communication Dr. Spencer added] :—

Since the discussion at the meeting a fragment of the broken 'concretion' handed to me by Dr. Heron has been analysed in Messrs. Bird & Co.'s Research Laboratory with the following interesting results :—

Insolubles	0·30%
Soluble Silica	16·61%
Alumina	5·25%
Ferric Oxide	2·00%
Lime	46·90%
Magnesia	0·95%
Sulphuric Anhydride	1·15%
Carbon Dioxide	7·00%
Water, etc.	18·25%
TOTAL	98·41%

This analysis shows that the concretion has been made from ordinary commercial cement which has been mixed with water and allowed to set in the ordinary way. This fact definitely rules out the possibility of an accidental origin. The article has either been made deliberately as a natural concretion, or it may have represented a primitive form of water container, or may perhaps have constituted the interior lining of a metal or some other container. The small black particles occluded in the cement, to which Dr. Heron drew my attention, have been found on chemical examination to consist of ordinary bituminous coal.

Mr. *Van Manen* said that he regarded Dr. Spencer's suggestion, that the objects might be accidental bye-products of some manufacturing process, a most valuable one. He recalled that amongst the Tibetans and Chinese freaks of nature were much appreciated and admired on the principle of *omne ignotum pro magnifico*. As amongst these people knowledge of natural history was often very scanty, they could often not distinguish between bizarre natural and artificial forms. The Tibetans styled natural freaks *rang hbyung*, that is: self-originated or naturally produced. He had been offered many pieces of stone, crystals, horns or bones of animals, pieces of decayed wood, and similar objects, which, simply on account of their unusual shape, were thought much of by their possessors. A Tibetan once suggested to him that an ordinary glass paper-weight ball with vivid flower- or flame-shaped colours cast inside would be counted as a most valuable rarity in Tibet, under the impression that it was a natural freak. He thought that Dr. Spencer's suggestion was plausible for this reason that it is not likely that the artificial objects had been purposely manufactured *as* artificial freaks. If that had been the case, such manufacture would certainly not be an isolated instance, and other specimens would be floating about. In this case, neither his Chinese, nor his Tibetan friends, nor any European collector had met similar objects; so they could not be very common. It might be very well that some observant Chinaman or Tibetan had picked up the things from a rubbish heap near some mine or iron or cement works as marvels of nature.

3. JOHAN VAN MANEN.—*A Babylonian clay Tablet with cuneiform Inscriptions.*

Mr. *Van Manen* said that his communication was not intended to give information but to seek it. India had, like other countries, its special advantages in the matter of material for scholarly study. In all Indological matters its collections and resources were rich. In some other directions its material and resources were poor; for instance with reference to Egyptological or Babylonian studies, experts and reference works.

Recently his assistance had been sought to determine the contents of an inscription on a small clay tablet presumably brought from Mesopotamia. The owner possesses half a dozen similar ones but can give no precise information concerning their provenance. They are probably war relics. The little brick was now placed before the meeting in the hope that some one amongst those present might either be able to give information concerning it, or help in putting the Society in touch with some local scholar able to do so. If no solution could be arrived at in the meeting, perhaps publication of the request in the Advance Proceedings might lead to it.

The tablet was handed round.

4. W. D. WEST.—*Cinematograph film of Quetta after the earthquake.*

A short film showing the destruction wrought by the earthquake in various parts of Quetta and at Mastung. Of particular interest are new earthquake-proof bungalows built by the N.W. Ry. since the last earthquake, and quite undamaged by the present earthquake.

It was decided to hold over this exhibit till the next Ordinary Monthly Meeting to be held on MONDAY, THE 2ND SEPTEMBER.

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SEPTEMBER, 1935.

An Ordinary Monthly Meeting of the Asiatic Society of Bengal was held on Monday, the 2nd, at 5-30 P.M.

PRESENT.

SIR LEWIS FERMOR, KT., O.B.E., D.SC. (Lond.), A.R.S.M., M.INST.M.M., F.G.S., F.R.S., F.A.S.B., President, in the Chair.

Members :

Auden, Mr. J. B.
Biswas, Mr. K.
Bogdanov, Mr. L.
Brahmachari, Dr. P. N.
Brown, Mr. Percy
Chakravarti, Prof. C.
Chatterji, Mr. P. P.
Coulson, Dr. A. L.
Ezra, Sir David
Fox, Dr. C. S.
Gee, Mr. E. R.
Ghose, Mr. T. P.
Ghosh, Mr. P. N.
Groth, Mr. E. M.
Heron, Dr. A. M.
Hora, Dr. S. L.
Hosain, Dr. M. H.
Lal, Dr. R. B.
Manen, Mr. Johan van
Mitter, Hon'ble Sir B. L.
Olpadvala, Mr. E. S.
Prashad, Dr. B.
Sondhi, Mr. V. P.
Spencer, Dr. E.
West, Mr. W. D.

Visitors :

Bagchi, Mr. D.
Bhattacharji, Mr. D.
Ezra, Lady
Fermor, Lady
Fox, Mrs.
Hunt, Mr. H. C.
Mitter, Lady

The minutes of the last meeting were read and confirmed.

The General Secretary reported receipt of eight presentations of books, etc., which had been placed on the table for inspection.

The following candidates were balloted for for election as Ordinary Members :—

(18) *Chakrabarti, Sukumar*, B.Sc. and B.A. (Calcutta), D.Litt. (Paris), Barrister-at-Law, Member of the Société Asiatique de Paris, P. 139, Russa Road, Calcutta.

Proposer : Johan van Manen.
Seconder : Sir Lewis Fermor.

(19) *Faruqi, A. J.*, M.Sc. (Alld.), Ph.D. (London), D.I.C., Lecturer, Zoology Department, Muslim University, Aligarh, U.P.

Proposer : S. L. Hora.
Seconder : M. Hidayat Hosain.

(20) *Howland, Felix,* Professor of English, Habibia College, Kabul, Afghanistan.

Proposer : Jamal-ud-Din Ahmad.
Seconder : W. D. West.

The General Secretary reported that there had been no loss of membership, since the previous meeting, by death.

The General Secretary reported that there had been no loss of membership, since the previous meeting, by resignation.

The General Secretary reported that there had been no lapses of election, since the previous meeting, under Rule 9.

The General Secretary reported that there had been no withdrawals of application, since the previous meeting.

Papers were presented, and Exhibits were shown and commented upon, as detailed below.

The Chairman announced the result of the ballot for the election of Ordinary Members and declared all candidates duly elected.

The Chairman announced that no meeting of the Medical Section had as yet been arranged to be held during the current month.

The Chairman announced that unless special notice was given there would not be any Monthly Meeting during the recess month of October, 1935.

The following paper was presented :—

1. JATINDRA MOHAN DATTA.—*A new type of* Bagh-Bandi *or Tiger-play prevalent at Basirhat in Lower Bengal.*

A short note describing a variant of a previously published type of sedentary game, *Bagh-Bandi*, a hybrid between *Mughal-Pathān* and *Bagh-Bandi*. Locality, Basirhat, District of 24-Parganas. Dying out.

In the absence of the author the paper was taken as read.

The following exhibits were shown and commented upon :—

1. SIR L. L. FERMOR.—*Tubular Panjal Trap from Kashmir.*

In Kashmir there occurs a thick succession of basic volcanic rocks known as the Panjal traps which have been studied by a succession of geologists, namely Lydekker, McMahon, Middlemiss, Bion, and Wadia. These rocks are generally regarded as surface lava flows probably of terrestrial origin, but possibly submarine. They are of basic—basaltic—composition, though one observer (Wadia) has, by using the term 'augite-andesite', suggested a tendency to an intermediate composition.

These lavas are several thousand feet thick and in age range from Upper Carboniferous to Middle Trias.

Although holding the view that these rocks are true surface lavas of the age indicated by their position, Middlemiss, in his usual philosophical manner, has discussed the possibility that they might be intrusive and even of Deccan trap age, this possibility being suggested by the wide range in age of the rocks with which these traps are associated.

No geologist has yet given any careful description of the macroscopic features of these lavas putting beyond question their almost certain surface origin.

Last autumn I visited Kashmir, and under Mr. Wadia's guidance was shown some of the most important features of Kashmir geology. One of our excursions was to Shukar-ud-din hill near Botiung village on west side of Wular lake. Here Mr. Wadia showed me a fine section of the Panjal traps exposed in a canal cutting. The sheets of lava are dipping to the E.N.E. at about 45°, and consequently in a small distance several successive sheets are crossed making it easy to study the nature of the junctions between these sheets. In thickness the flows in this section vary from, say, 6 feet to between 50 and 100 feet. The upper portion of each flow is vesicular and amygdular and a small thickness at the base is usually amygdular, whilst the interiors of the flows are on the whole non-vesicular, though there are often scattered vesicles and sometimes lines thereof.

The most interesting discovery, however, was that in no less than three of the flows there are tubular vesicles at the base such as I have found at the base of some of the Deccan trap flows of Bhusawal in Berar. These are shown in the photograph to be circulated. This photograph shows the vesicular surface of one flow overlain abruptly by another flow, which is compact, except at the base where tubular vesicles can be seen arranged at right angles to the contact of the two flows. The contact is dipping steeply from left to right and is marked by a geological hammer. Under the microscope the tubular rock is found to be a typical basalt rich in what were once olivine crystals now completely altered to iddingsite and serpentine. Although these Panjal traps must originally have been very similar to the Deccan traps in their mineral composition, yet on account of their greater age and disturbance they have been altered with formation of epidote and chloritic and other secondary minerals. There has also been a certain amount of relative movement between successive flows as shown by the fact that the surface of the underlying flow is epidotic and slickensided. Specimens of both the pipe-rock with its tubular vesicles and of the slickensided surface of a flow are shown therewith.

As previously described, the Panjal traps do not contain olivine. These Botiung rocks are interesting also because some of them carry olivine. It may be remembered that in the Bhusawal flows I found evidence that in many flows olivine crystals had sunk towards the base, and as this tubular specimen containing olivine is also a basal specimen, its richness in this mineral may be due to the same cause. I may mention, however, that a specimen from the interior of one of these flows, which has a coarser grain and is, therefore, a dolerite, also contains olivine, though in smaller quantity.

My previous experience of the details of the Deccan trap basalt and dolerite flows pierced by the Bhusawal boring made me realize at once that here was definite evidence of the effusive surface origin of at least the Panjal traps of this locality; and Mr. Wadia impressed upon me at the time that this discovery was also of importance because, although it was generally accepted that the Panjal traps were surface lavas, yet the possibility of their intrusive origin had been at times discussed.

Dr. *C. S. Fox* said: It is a great step forward in the geology of the Panjal trap to have such definite evidence that in the section described the trap occurs as undoubted lava flows. The fact that no less than three lava sheets occur successively is, with the evidence of the tubular basal vesicular structure and upper amygdaloidal development, convincing data. If a single lava sheet were present some doubt might perhaps exist as to whether it was a sill or a flow. Many sills show cavities under their upper surfaces. Sir Lewis Fermor has written of these Panjal traps as surface flows. From evidence in the Deccan, Abyssinia, and America there seems to be no doubt that in these cases *surface* also means *subærial.* In each of these cases any sediments associated with the lavas are of fresh-water origin—possibly deposited in small lakes over which the lava spread. In Kashmir the lavas are closely associated with marine strata, and it becomes an important point whether the Pir Panjal lavas were poured out on the land or in the sea. Mr. Wadia had concluded that the Agglomeratic slate was largely composed of volcanic debris, but I do not think he has explained whether this material settled in the sea at the time of its ejection. These Agglomeratic slates are closely related to the Panjal traps, and so it is an important point if it can be definitely stated whether these eruptions were submarine or not. So far as I know we have no detailed descriptions of the character—texture and structure—of submarine lava flows at all comparable with those of the Pir Panjal.

Sir *Lewis Fermor* replied that Dr. Fox had answered the first question for him, namely that the traps at this exposure were lava flows. He added that a pillow structure was regarded as an indication that lavas had been erupted under submarine conditions. He had not observed any signs of such structures in the section described, nor were there any intercalations of marine or other sediments. The evidence is therefore in favour of a terrestrial origin, as with the Deccan lavas.

Mr. *W. D. West* asked Sir Lewis Fermor if he had seen the exposures described by C. S. Middlemiss and H. S. Bion, which suggested that the Panjal trap may have been in part intrusive.

If the Panjal trap is composed of lava flows, then the period over which they were erupted must have been of great length, from the Upper Carboniferous to the Middle Trias, one of the longest periods of igneous activity known. This was one of the reasons that prompted Mr. Middlemiss to suggest an intrusive origin.

Mr. *West* also drew attention to the fact that the area over which the Panjal trap was erupted was probably much greater than generally realized. The Mandi trap, first described by Col. McMahon, was very similar to the Panjal trap, and similar rocks are also found even further south-east.

Dr. *A. L. Coulson* said: I believe that Sir Henry Hayden has described rocks in Tibet very similar to the Panjal trap, which would also show how widespreaded these volcanic rocks were.

Sir *Lewis Fermor* replied that he had limited himself to a description of the Panjal trap at the place mentioned by him and that as he had not personally examined the outcrops described by Mr. Middlemiss and Sir Henry Hayden he did not feel competent to pass an opinion on the questions raised by both previous speakers.

Mr. *J. B. Auden* also spoke.

Mr. *D. S. Bhattacharji* said: In the Central Provinces (around Bhandara) it is found that pseudo-vesicular lava like rocks (altered) are formed by complex 'elastic' or 'plastic' deformation of one very basic and another acid or intermediate rock, *e.g.*, a suitable combination of greenstone quartz-rock, epidosite and granite. The 'vesicles' are filled by quartz, epidote and calcite and quartz, dark crushed rock (very basic and comparable with the green-stone of the Panjal trap), etc. These vesicles sometimes form lenticular masses like tubes of the Panjal trap. These are very old rocks and are older than the Deccan trap.

The Panjal traps are very old rocks and do not show any definite sign of their igneous origin. These are also highly disturbed.

It is therefore possible that the vesicular structure is not original but is only a secondary structure developed by earth movement for a long time. If this is true, the question of extrusion or intrusion does not arise at all.

Sir *Lewis Fermor* in reply wrote that he had no doubt that the rocks of Botiung were igneous rocks judging from both their macroscopic and their microscopic characters. He was not acquainted with Mr. Bhattacharjee's pseudo-vesicular rocks and therefore was not aware how closely they simulated vesicular lavas.

2. A. L. COULSON.—*Additional Stones from the Perpeti Meteoric Shower.*

Since the August meeting of the Society, when eleven stones which fell in villages under the jurisdiction of Chandina police station during the Perpeti meteoric shower of the 14th May, 1935, were exhibited, three additional stones, of a total weight of 1,531·604 grams, have been recovered by the District Magistrate from villages under the jurisdiction of Kachua police station in Tippera district. The total weight of all specimens recovered from this shower now amounts to 23,474·18 grams.

One of the three additional stones (298 L) is extremely interesting in being the sole specimen of the shower which shows a secondary crust. This has been developed on two of its faces by their imperfect fusion after their formation as a result of a secondary disruption of the stone in its passage through the earth's atmosphere. The contrast between the generally smooth, thin crust characteristic of all the stones of the Perpeti shower and the coarse, dark, rough, secondary crust on these faces of 298 L is very marked.

The smallest of the three additional stones is an almost perfect crust-covered specimen.

It would appear that the stones of the Perpeti meteoric shower fell within a rectangular area some five miles long by three miles wide, the supposed direction of flight of the parent meteor being in the direction (south-west to north-east) of the shorter side.

Dr. *A. L. Coulson* said that this evening there seemed to be rather a surfeit of geological exhibitors, with exhibits ranging from tubular vesicles, meteorites, coffins and skulls to earthquakes. He therefore did not propose to take up too much of the time of the meeting.

Dr. Coulson recalled to the members present that at the August meeting of the Society, he had exhibited eleven stones of the meteoric shower that fell at Perpeti in the Tippera district on May 14th, 1935.

Apart from certain characteristics of form, none of those stones had any special interest. It was therefore all the more gratifying to note that of the three extra stones of that shower which had been received since the last meeting, two had features of more than common interest.

The largest stone shows very plainly a secondary crust which has been developed on two of its faces. This secondary crust, as you see, is black, rough to touch, and shows up well in contrast with the smooth, generally thin dark crust on the other parts of the stone. It indicates that this stone, which was born of the parent meteorite when that disrupted into the numerous stones of the Perpeti shower, has itself suffered disruption not very long before it reached the earth's surface. Consequently the time of flight was insufficient for there to be complete fusion of the new surfaces of the stone and only the rough, secondary crust has been formed.

The smallest stone is also very interesting. If one examines closely this surface of the stone, one can see an imperfectly developed system of radiating flow lines. These are due to the effects of surface air currents upon the fused surface of the stone during its flight towards the earth in the atmosphere.

These three additional stones from the Kachua police subdivision, together with the eleven stones previously exhibited from the Chandina police subdivision, both in the Tippera district, form a very valuable addition to the collections of the Geological Survey of India. All of them fell within a rectangular area some five miles by three miles, the shorter side of which is in the direction, north-east to south-west, of the flight of the parent meteorite. This is unusual as one expects the longer side to be in the direction of flight of the parent stone, as in the case of the Dokachi meteoric shower referred to at the last meeting. However the cause may be due to the fact that apart from the two largest stones, weighing about 7 and 5 kg. respectively, all the other stones are less than 2·7 kg. and no fewer than seven of these are more than half a kilogram.

Dr. Coulson added that before concluding his remarks, he would like to draw attention to the report that appeared in to-day's (2nd September) *Statesman*, in which it was stated that the stones of a recent meteoric fall near Comilla, totalling some 52 lbs., had been collected by the District Magistrate of Tippera district and were being sent to the Geological Survey of India. Dr. Coulson stated that if this report were true, then the stones in question were apparently those of the fall on ? 1st August, 1935, near the village Nangalkot, some 20 miles south of Comilla in the Tippera district of Bengal. The first report concerning this fall appeared in the *Ananda Bazar Patrika*, and a copy, after translation by Mr. P. C. Roy, Assistant Curator, Geological Survey of India, who first drew the attention of the Geological Survey of India to it, was sent to the District Magistrate of Tippera. Recently a communication had been received from the District Magistrate to the effect that enquiries were being made and that a further report would be sent by him later. It was to be hoped from the *Statesman* report that the District Magistrate had been successful in obtaining the stones of this Nangalkot fall and that at the next meeting of the Asiatic Society, the members would be able to see them. There was no connection between the Perpeti meteoric shower and this reported fall at Nangalkot; it was sheerest coincidence that two falls so close together, May and August, should happen to be in the same district of Bengal.

Sir *B. L. Mitter* asked if there were any statutory orders regarding the possession of meteorites.

Dr. *Coulson* replied that he was unaware of any orders other than those of the Government of India contained in their circular letter referred to at the last meeting, whereby all meteorites falling within the limits of British India were the property of the Government of India and should normally find a resting place in the collections of the Geological Survey of India in the Indian Museum, Calcutta.

Mr. *Percy Brown* asked if there was any evidence to the effect that falls of meteorites were becoming more frequent in recent years.

Dr. *Coulson* replied that he did not think that meteorite falls were becoming more frequent in recent years but, as Mr. Percy Brown suggested, falls are nowadays, through the medium of the Press, being brought more frequently to the notice of the public. Also the Government of India orders referred to are becoming more generally known through constant enquiries being made by the Geological Survey of India on the occasion of any new reported fall.

Mr. *Van Manen* described the very interesting occurrence of shooting stars being seen by him when he was ill in bed and happened to have his head in the same position on his pillow thus being able to see through the same section of his window on two successive nights recently. According to his impression—he had not noted the hour—at approximately the same time of the night, at the same place, and in exactly the same direction, a meteor or shooting star appeared, and became extinguished halfway in the field of vision, at the same approximate distance from the window frame. The luminous track was rather dull than brilliant white. He asked whether these would more likely have been meteors or shooting stars.

Dr. *Coulson* replied that most meteorites have been recorded as falling within the months of May and June. These are the summer months in the northern hemisphere where most observers are domiciled, but against that must be remembered the fact that very few meteorites are known to fall in July, which is also a summer month. According to Pickering, falling stars and fireballs are much more evenly distributed through the year than are meteorites and their period of greatest number is from July to November. In May and June, in contrast with meteorites, their number is at a minimum. So there is every reason to question the gradation that has been supposed to exist between meteors and meteorites.

3. V. P. Sondhi.—*A Coffin and a Skull from a limestone Cave in the Southern Shan States, Burma.*

In the course of a geological traverse in a remote part of the Southern Shan States, Burma, in 1932, while making the usual enquiries on the mineral occurrences in the place, the exhibitor was informed of the existence of a cave there, containing coffins with human skeletons. It was only recently discovered by a honey-collector who had climbed to the mouth of the cave to collect honey from a beehive there, by means of bamboos vertically fixed in the crevices.

The story appeared incredible at the time as not only is no present tribe known to dispose of their dead in this manner, but the transport of heavy coffins to the cave, which is situated in the middle of a sheer cliff some 500 ft. in height, seemed impossible. But the old honey-collector insisted that he had seen the coffins and in support produced a skull that he had grabbed from the nearest coffin. The exhibitor thereupon decided to visit the cave himself and did so twice, in 1933 and 1935, and he has brought back a coffin and a skull. Extensive enquiries in the Shan States failed to elicit any information as to what tribe this burial place could belong to, and the object of the present exhibit is to try the medium of the Asiatic Society of Bengal for this purpose.

Mr. *Sondhi* said :—

In the course of my geological work in the Southern Shan States, Burma, in 1932, I visited an old silver mine near Melun (Melawn) in the Mawkmai State, and while I was making enquiries on the history of the mine and on other mineral occurrences in the area, I was informed of a recent discovery of a cave in the neighbourhood, filled with wooden coffins containing human skeletons. The cave lies in a very inaccessible place, in the centre of a sheer cliff, some 500 feet high, and was discovered quite accidently by an old inhabitant of Melun, who managed to climb up to it to collect honey from some beehives he had noticed from a distance. While doing so he happened to peep into the cave and was astonished to find it full of coffins with skeletons. He brought down a few bones and an earthen pot that he found near the entrance. The bones were much valued as charms and amulets to ward off evil spirits and were distributed to the villagers, the old honey-collector retaining a complete cranium and the earthen pot for himself. After some persuasion and monetary compensation I took possession of these and brought them down to Rangoon. The pot was made crudely out of poor clay and was only lightly baked, and its shape and size were quite new to the villagers. It reached Rangoon safely but in a few days it fell to small pieces due to excessive humidity. The skull was shown to Col. Lack, I.M.S., then Principal, Medical School, Rangoon, who thought it belonged to a modern man.

While discussing with the villagers as to what tribe these coffins and skeletons could possibly belong to, I was told of a strong and widespread belief that there existed in the jungles in the neighbourhood, a primitive type of human beings who roam about like other denizens of the forest. They were described as hairy men about the size of an average Shan but none of the villagers present had actually seen one, although one or two asserted that they had seen their foot-prints and had heard their voices from a distance. I was also informed that human bones were sometimes found in places where their presence is not accounted for, and rarely an earthen pot or a wooden implement is picked up, of a type unknown to the villagers ; but none of these things could be produced for my inspection because such things, I was told, were not preserved, they being of no good to anybody. These primitive men keep well out of sight of the civilized men and away from their habitations. But sometimes when the paddy is ripe they are reported to have approached the villages and fields at night and decamped with paddy. They are also reported to chop at trees with an upward stroke which is contrary to the common practice. The villagers are usually shy of talking on such matters for fear of being ridiculed but when encouraged and listened to patiently they become communicative. It is curious that whereas an average native of these parts attributes any and all inexplicable occurrences to 'Nat', the Lord of Evil, whom they fear and revere, the supposed primitive human beings are spoken of in a patronizing and light-hearted manner, and their actions are regarded as the misdeeds of a spoilt child.

There seemed to be no way of proving the existence of these primitive people but I decided personally to confirm the truth of the story about the cave and the coffins. On return to Calcutta I discussed the story with Dr. S. L. Hora and he also impressed on me the necessity of a visit to the cave and of recovering a coffin if possible.

An opportunity offered itself in 1933 when, with the help of some villagers, a light bamboo scaffolding was put up. The only practicable way of reaching the cave is first to climb the slope just to the east of the cliff, up to the level of the cave, and then to negotiate the remaining distance of about 30 yards by walking over bamboos fixed in between crevices and ledges. During this trip I was led by the original discoverer. In order to keep both hands free for clutching at any holds that might offer on the rock-face we had to leave behind things like ropes, spades, lanterns, etc. A small camera and some flash-powder

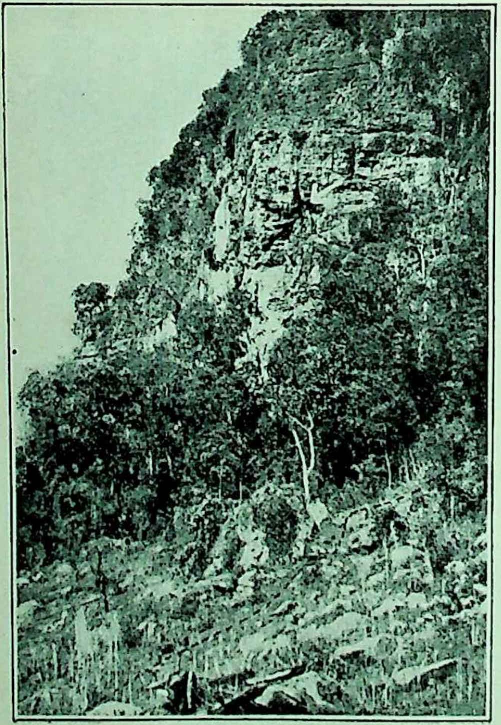

FIG. 1.

FIG. 1. A view of the limestone cliff with the arrows pointing to the cave. The dotted line represents the route taken. Below the cave, and slightly to the right is seen the bamboo scaffolding as used in the first visit.

FIG. 2. The three coffins brought out of the cave. The one on the right was exhibited in the meeting. The one on the left has an animal figure (inserted above) carved on the reverse side.

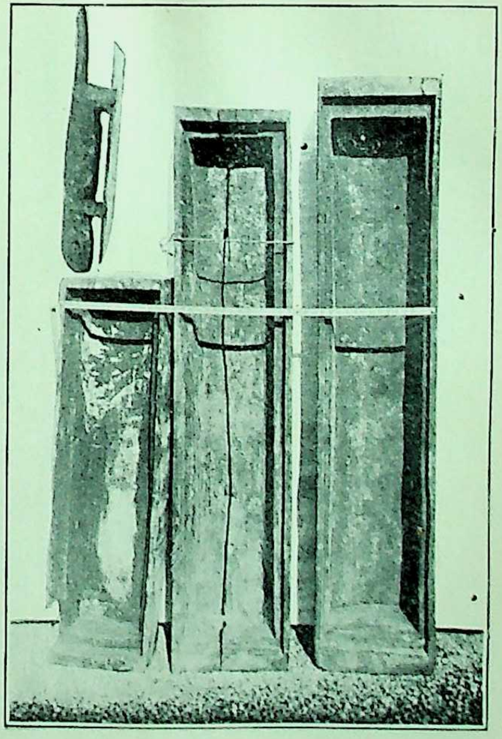

FIG. 2.

were carried in pockets. Boots had to be discarded as they slipped badly on the bamboos, and although the latter were extremely hot in the midday sun, they had to be negotiated barefeet. It was very much like tight-rope walking, only the rope in this case was a hot bamboo! We had constantly to face the rock-wall, lean against it and move sideways. With difficulty we reached the mouth of the cave and crawled in through the crooked entrance.

The cave is in reality a natural fissure in the limestone, with a slanting roof and an uneven floor. The coffins and human bones were there as described by the honey-collector, and it was so full of these that movement inside the cave was difficult. We had hardly crawled some 10 feet when the old guide picked up a freshly shed skin of a large snake! As we were not prepared to meet such an emergency I thought it best to make a hurried retreat before we annoyed the possessor of the skin. Moreover, a glance was enough to show that there was nothing else we could do beyond confirming the discovery. It was impossible to take any photograph in our cramped position; we could not get far enough from the coffins for the purpose and we could not use the flash for fear of choking ourselves with fumes and also for fear of accidently igniting the coffins, which were tinder-dry. It was also impossible for us to bring down a coffin or even to throw one out, as in that case not only would the coffin be reduced to splinters on landing below the cliff but it would at the same time sweep away our scaffolding from below the mouth of the cave which was our only possible way of retreat. It was clear that for further exploration a better-equipped party was needed.

The discovery was brought to the notice of the Commissioner, Federated Shan States, Mr. J. Clague, I.C.S., who at once took a great interest in it, and it was made known to other officers with a view to collecting whatever information they could.

In March, 1935, we got up a party consisting of Mr. N. W. Kelly, Capt. R. L. Frost, Mrs. Frost, Mr. P. A. Plunkett, three officers of a timber company, and myself. We owe the success of this expedition entirely to the excellent and thorough arrangements made by Mr. Kelly, to whom we are all indebted. A number of villagers was collected and a strong bamboo scaffolding was rigged up under his supervision. As there was no room for all of us in the cave we went in in relays. A look inside the cave was enough to show that the cave had been raided since my last visit. There were very few bones left now and practically no skull was obtained. The coffins too were not arranged now in the manner I had seen them last. As we had lights this time we could see further in. There were some 30 to 40 coffins in the portion of the cave visible to us. They varied in size and in some cases, slightly in design. They are all carved out of solid logs of teak and the outer surfaces are levelled by short chopping strokes rather than by a saw, much in the manner that the present day Burmese and Shan dug-out are made. The average dimensions are somewhat less than those required to accommodate an average man, and it is presumed that the corpses must have been in a shrunken state to fit these coffins. One of the three coffins brought down has the figure of a four-legged animal (lizard ?) carved out of the same log as the coffin, and there are traces of another similar figure facing it. Presumably this formed a lid to a coffin. From the growth rings exposed on the ends of the coffin we find that it was carved out of a quarter of a log of teak and some of the logs must have been from 3 to 4 feet in diameter. Coffins near the floor of the cave were usually rotten but those higher up were mostly in a good state of preservation. It may either indicate a greater age for the coffins nearer the bottom, or it may be due to greater amount of moisture on the floor, which, it is possible, may be partly under water in the rainy season.

A curious feature of the bones collected is that almost all the long bones—those of the legs, are roughly cut or scraped at more or less the same position at the two terminals. The parallel narrow grooves and lines are like those produced by the gnawing of rodents, but it has been suggested that these cuts might be a *post mortem* mutilation by human agency representing some kind of a burial ritual of a particular tribe. Among the bones collected there are a few slender ones, one of which exhibited here has kindly been identified by Dr. B. Prashad as a femur of a young monkey.

Extensive enquiries in the Shan States have so far failed to elicit any information as to what tribe this burial place could belong to. All the existing tribes bury their dead underground except for Buddhist monks and the members of ruling families who are cremated. Other equally puzzling problems, though of local interest, are: how were the coffins transported to the cave, and how did the bones come to be mutilated? The coffins could not have been lowered from the summit of the cliff to the cave. It is possible that the cave or the fissure, extends further than we could see, to the other side of the hill, and was entered into from that direction. No trace of such an entrance, however, exists. Possibly it existed formerly, and was filled up after the cave was fully loaded with the coffins, and the tropical growth obliterated the site in a few years. The only other conceivable way would be by a rock ledge that may have once extended over the gaps that we had to span with bamboo scaffolding. This could have been broken down after the cave was full, or possibly the ledge fell off itself through natural agencies, such as an earthquake or a land-slide. A narrow ledge does, in fact, extend over part of the way and lends support to this supposition.

The object of the present exhibit is to circulate among the members of the Society the circumstances of the discovery of coffins containing human skeletons in an inaccessible cave in a remote part of Burma, in the hope that some light will be thrown by them on this mysterious occurrence and on the various problems connected with it.

Dr. *Baini Prashad* described the human bones submitted to him for examination. He added that the grooves, or marks, occurring at the end of the bones seemed to him produced by rodents and not by human agency He added that the femur of a monkey was found free from such markings.

Dr. *Hora* remarked that in 1933 he enquired from Mr. Sondhi if he had heard any stories of 'wild men' during his extensive travels in Burma. The information was required for Mr. Johan van Manen who was then making a detailed study of the subject. Mr. Sondhi gave him an account of a supposed hairy primitive tribe near the village of Melun in Burma and mentioned the existence of a large number of their peculiar coffins in a cave. At the speaker's suggestion Mr. Sondhi wrote a note about this tribe which was shown to Dr. B. S. Guha, Anthropologist with the Zoological Survey of India. The speaker had also requested Mr. Sondhi to take further interest in the subject and it was a matter of great pleasure to him that so many fresh details had been gathered. On Dr. Guha's return the information now available would be supplied to him and the speaker did not doubt that Dr. Guha would be able to throw some light on these peculiar customs. In the meantime if Mr. Sondhi could get further opportunities to collect more material, he should do his best to avail himself of these and send the material to the Zoological Survey of India for investigation.

Dr. *Guha's* comments on Mr. Sondhi's note were as follows :—

Mr. Sondhi's note on the existence of a hairy primitive tribe near the village of Melun (Burma) is very interesting and calls for a thorough exploration of the region. Of the existence of a non-mongoloid primitive stratum in the population of the unexplored regions of Burma we have many evidences and remnants of the same racial stock in comparatively unmixed state may very possibly be found in isolated tracts not explored so far. Exposure of dead bodies in canoes is part of a widely spread custom of the disposal of the dead which links further India with Oceania

I would suggest: (i) photographs and all details regarding this form of the disposal of the dead be taken and if possible locate the tribe which still practices this, (ii) collection of all skulls and if possible other objects, such as earthen pots etcetera, which are left there. If an entire canoe can be procured so much the better. In any case I would strongly urge that all the skulls that can be got hold of should be kept and sent to us in the Indian Museum. The more skulls that can be procured the better for our purpose. If possible attempts should be made to get the mandibles with the skulls. Skulls should be given preference to, no doubt, but other bones, specially the pelvic and the long bones are very useful for study. If ascertainable the bones of each single skeleton should be marked separately so that there is no chance of their getting mixed up.

If living men of the tribe be observable, then photos should be taken of them as well as of their habitations, and all details regarding their mode of life and customs should be gathered.

Mr. *Van Manen* drew attention to a most remarkable coincidence in connection with this matter. Exactly 40 years ago a similar discovery was made under similar circumstances, though in a place far distant from the Shan State and apparently unrelated to them and their inhabitants. The description of that earlier discovery was published in the Journal of the *Anthropological Institute of Great Britain and Ireland*, Vol. 26, (1897), page 33ff. The full title of that communication ran :—

'On Unusual Forms of Burial by People of the East Coast of Borneo. By C. V. Creagh, Esq.'

For purposes of comparison it is sufficient to quote the 'Extract from Diary for March, 1895' with which the note opens :—

'March 13th.—Visited some caves in a limestone hill on the left bank of the river near the Batu Puteh estate. These caves were used as burial places by a former race of inhabitants of whom none of the present settlers or traders on the Kinabatangan could give me any information. The entrance to the upper cave (being in the face of an almost perpendicular rock at about seventy or eighty feet from the ground) is somewhat difficult to reach. It contains about 40 bilian (=ironwood) coffins, artistically carved with figures of buffaloes, crocodiles, lizards, and snakes, containing skeletons of men, women, and children: and also sumpitans, spears, and articles of Chinese and other pottery, with brass ornaments of native and foreign workmanship. The relics appear to me to be of Javanese origin, but there is no tradition on the river of settlers of this nationality. The carvings and scroll work on some of the coffins are superior to those now executed by native workmen.'

The further details are given in a brief note, only two and a half printed pages in length, with illustrations added on another page.

The speaker hoped that in further investigations regarding Mr. Sondhi's discovery, the previous one from Borneo should be kept in mind.

4. W. D. WEST.—*Cinematograph Film of Quetta after the Earthquake.*

A short film showing the destruction wrought by the earthquake in various parts of Quetta and at Mastung. Of particular interest are new earthquake-proof bungalows built by the N.-W. Ry. since the last earthquake, and quite undamaged by the present earthquake.

Mr. *West* said that the film was taken with the object of placing on permanent record the effects of the earthquake in Quetta and the surrounding country, and of showing the relation between the damage sustained by buildings and the nature of their construction. The great loss of life, the largest that has occurred in any Indian earthquake, was directly attributable to the inferior construction of the buildings.

Some of the features of the earthquake shown in the film included the complete destruction of Quetta city; the gradual decrease in the intensity of the damage towards the Cantonment and the Staff College, which was scarcely affected; the manner in which certain buildings recently constructed by the North-Western Railway on earthquake-proof lines escaped undamaged; the rotation of monuments in the cemetery; the heavy falls of rock on Chiltan mountain; the fissuring of the alluvium between Chiltan and Mastung, and the associated buckling of the railway line; and the general destruction in Mastung.

NOVEMBER, 1935.

An Ordinary Monthly Meeting of the Asiatic Society of Bengal was held on Monday, the 4th, at 5-30 P.M.

PRESENT.

SIR LEWIS FERMOR, KT., O.B.E., D.SC., A.R.S.M., F.G.S., M.INST.M.M., F.R.S., F.A.S.B., President, in the Chair.

Members :

Basu, Mr. N. M.
Bose, Mr. M. M.
Brahmachari, Sir U. N.
Brown, Mr. Percy
Chatterjee, Mr. P. P.
Chatterji, Dr. S. K.
Coulson, Dr. A. L.
Dey, Mr. Mukul
Driver, Mr. D. C.
Ezra, Sir David
Fawcus, Mr. L. R.
Ghose, Mr. T. P.
Ghuznavi, Mr. I. S. K.
Groth, Mr. E. M.
Heron, Dr. A. M.
Hobbs, Mr. Harry
Hora, Dr. S. L.
Hosain, Dr. M. H.
Jain, Mr. C. L.
Majumdar, Mr. N. G.
Manen, Mr. Johan van
Mitter, Sir B. L.
Mukherjee, Dr. J. N.
Ow-Wachendorf, Baron W.
West, Mr. W. D.

Visitors :

Blake, Mrs. G. F.
Brown, Mrs. Percy
Ezra, Lady
Fermor, Lady
Hafiz, Dr. H. A.
Ow-Wachendorf, Baroness

The minutes of the last meeting were read and confirmed.

The General Secretary reported receipt of eleven presentations of books, etc., which had been placed on the table for inspection.

The General Secretary reported that the following candidates had been elected Ordinary Members during the recess month, October, under Rule 7 :—

(21) *Mitter, Sudhir Chunder*, Barrister-at-Law, 19, Camac Street, Calcutta.

Proposer : Sir B. L. Mitter.
Seconder : Sir L. L. Fermor.

(22) *Chaudhuri, Sachindra Nath,* Barrister-at-Law, 52, Ballygunge Circular Road, Calcutta.

Proposer : Sir B. L. Mitter.
Seconder : Sir L. L. Fermor.

(23) *Banerjee, Sailendra Nath,* Barrister-at-Law, 307, Circus Avenue, Calcutta.

Proposer : Sir B. L. Mitter.
Seconder : Sir L. L. Fermor.

(24) *Dutt, Mohendra Nath,* L.E., I.Eng.S. (Retired), Consulting Engineer, Late Executive Engineer, P.W.D., 6, Old Post Office Street, Calcutta; 12, Kailas Bose Lane, Howrah.

Proposer : Sir B. L. Mitter.
Seconder : Sir L. L. Fermor.

(25) *Basu, Satyendra Kumar,* M.Sc., Extra Assistant Conservator of Forests, Clover Cot, Darjeeling.

Proposer : N. K. Basu.
Seconder : Sir U. N. Brahmachari.

The General Secretary announced that the following candidates would be balloted for as Ordinary Members :—

(26) *Bor, N. L.,* M.A., D.Sc., F.L.S., I.F.S., c/o. The Conservator of Forests, Shillong, Assam.

Proposer : S. L. Hora.
Seconder : R. N. Chopra.

(27) *Anina Klebe,* née *Brandt,* Ph.D. (Greifswald, Germany), Psychologist, 14/1, Sudder Street, Calcutta.

Proposer : N. Barwell.
Seconder : Johan van Manen.

(28) *Hirtzel, Michael Arthur Frederick,* B.A. (Trinity College, Oxford), Mercantile Assistant, Macneill & Co., 2, Fairlie Place; 18, Alipore Park Road East, Calcutta.

Proposer : N. Barwell.
Seconder : Johan van Manen.

The General Secretary reported the following loss of membership, since the previous meeting, by death :—

(8) Lt.-Col. H. W. Acton (An Ordinary Member, 1921, Fellow, 1930).
(9) Dr. P. J. Brühl (Life Member, 1909, Fellow, 1912).
(10) Dr. J. N. Maitra (An Ordinary Member, 1918).
(11) Dr. Sylvain Lévi (An Honorary Fellow, 1920).

The General Secretary read an obituary notice of Dr. Sylvain Lévi (see page 219).

The General Secretary reported receipt of news of the death of the following former Members of the Society :—

Sir John Thompson (An Ordinary Member from 1909 to 1933).
Sir D. P. Sarvadhikary (An Ordinary Member from 1909 to 1935; Vice-President from 1924 to 1929).
Dr. G. N. Mukhopadhyaya (An Ordinary Member from 1908 to 1931; Fellow from 1923 to 1931).

The General Secretary reported the following loss of membership, since the previous meeting, by resignation :—

(19) Otto Hubert (An Ordinary Member, 1926).

The General Secretary reported that there had been no lapses of election, since the previous meeting, under Rule 9.

The General Secretary reported that there had been no withdrawals of application, since the previous meeting.

In accordance with Rule 40, the General Secretary reported that the names of the following Ordinary Members would be removed from the next Member list of the Society :—

1. Count Bassewitz.
2. R. Friel.
3. R. Y. Jarvis.
4. Thornton Jones.
5. Hans Koester.
6. C. E. Lomax.

In accordance with Rule 48(*a*), the General Secretary reported that the Council, since the last Ordinary Monthly Meeting, had adopted certain modifications in the Regulations regarding the award of the various Memorial Medals awarded by the Society, as follows :—

1. BARCLAY MEMORIAL MEDAL.

Regulation 1 : *Read* 'every two years' *for* 'each alternate year'.

2. SIR WILLIAM JONES MEMORIAL MEDAL.

Regulation 1 : *Read* 'every three years' *for* 'biennially'.

3. ALL MEDALS.

Regulation 1 : *Read* 'shall ordinarily be awarded' *instead of* 'shall be awarded'.

Regulation 3 : *Insert* 'In any year preceding one in which the award will be due' *before* 'The Council shall'.

Regulation 6 : *Read* as follows :—

(6) The Advisory Board shall submit to the Council the name of the person to whom, in the Board's opinion, the Medal should be awarded. It shall be open to the Board to report to the Council that no award should be made for the year ; and, in such case, provided the Council concurs, a new Advisory Board shall be constituted in the following year, and so on, from year to year, in the manner prescribed above, till recommendation is made for an award and accepted by the Council. The period of years mentioned in Regulation 1 shall always be counted from the year of the Award.

4. PRAMATHA NATH BOSE MEMORIAL MEDAL.

Regulation 3 : Second paragraph, *read* :—

The Council shall then proceed to appoint an Advisory Board which shall include not less than three out of the names placed before the meeting by the General Secretary. The Board shall always include at least two Geological Experts ; and the General Secretary shall be an *ex-officio* member and Secretary of the Board. The Council may, for special reasons, appoint one or more Experts to the Board other than those named by the General Secretary.

Papers were presented, and Exhibits were shown and commented upon, as detailed below.

The Chairman announced the result of the ballot for the election of Ordinary Members and declared all candidates duly elected.

The Chairman announced that a meeting of the Medical Section had been arranged to be held in the Society's Rooms, on Monday, the 18th November, at 6 P.M., when the following papers would be read :—

1. S. L. HORA.—*Recent Indian cases of live fishes impacted in the food and air passages of man.*

2. B. G. MALLAYA.—*Surgical aspect of live fishes impacted in the human food and air passages.*

The following exhibits were shown and commented upon :—

1. PERCY BROWN.—*Portrait of a Lady of the Elizabethan Period.*

Some time ago I acquired in India a miniature painting of a lady, which, according to her costume, shows that she belonged to the Elizabethan period (1533–1603), or shortly after. It is inscribed ' Badshazadi Velayet Angrez ', but it is hardly likely to be the portrait of an English Princess, and I suspect this writing was a subsequent addition by an uneducated hand. It seems not improbable that this miniature was painted about the time that the costume it depicts was the vogue in England, say at the beginning of the 17th century.

The questions that arise are two : (1) who is the lady, and (2) who is it by ?

We will take the latter first. That the picture has an English origin there can be little doubt, and the English miniature painters of the early 17th century can be counted on the fingers of one hand. Among these were two of the name of Oliver, father and son, of whom we read that they were responsible for portraits of a larger size than usual, some of them measuring as much as 10 inches by 9 inches. I am presuming the date of this picture was in the vicinity of 1610, in which case the original painter would have been Isaac Oliver, the father, who would have been at his best at that date. Its size also confirms the Oliver attribution.

It is doubtful however whether it is the actual handiwork of an English painter, although this point has not been definitely decided. There is much in the technique, for instance, which it appears could only have been produced by an artist trained in the English tradition : on the other hand there are also certain indications of an oriental style of workmanship in some of the accessories. Both these somewhat conflicting conditions can, however, be more or less harmonized if it is considered that the picture is a copy by a leading Indian artist of an original by an English artist, such as the elder Oliver.

Now for the question as to the subject of the painting. In the account of 'The Embassy of Sir Thomas Roe', the English Ambassador who spent the years 1615 to 1619 at the Court of the 'Great Mogul', there are several well-known references to the art of miniature painting. On one occasion there was an animated conversation between Roe and the Emperor Jahangir regarding a portrait of a lady in the possession of the former, and which the Emperor much admired. This miniature, it transpired, was one of Lady Roe, and eventually it was lent to Jahangir from which he had five copies made by his own Court painters, after which it was returned to the Ambassador.

In the circumstances it seems not improbable that the present exhibit was one of these copies, and, if so, it has several interests. In the first place it shows the marvellous faculty of Jahangir's artists for imitation, and also their expertness in the miniature painter's art, and its technique. But perhaps equally important it brings before us the portrait of a lady, who, as Lady Roe, appears to have possessed more than the ordinary virtues. For Roe's last will and testament includes the following :—

> 'Here I take my last leave of her, my most faithful loving and discreet companion in all the troubles and infirmities of my life, beseeching God that we may meet in the joys of heaven; and I desire that my whole will may be interpreted for her best advantage, for I am not otherwise able but with love to requite her merits to me.'

Mr. *Brown* said :—

The incidents presumed to associate this miniature with Lady Roe will be found on pages 225 and 255 of 'The Embassy of Sir Thomas Roe (Vol. I) by W. Foster, Hakluyt Society'. In this connection it is an inexplicable fact that there is no mention of this embassy in Jahangir's own voluminous memoirs, although Roe was in frequent personal contact with this Mughal Emperor during the course of his mission.

It is fairly clear that the picture is a miniature painting copied by an Indian artist from an English original, as besides the technique there are certain details in the picture which the artist has not quite understood and has accordingly reproduced without adequate knowledge. That the Mughal painter was, however, a genius in his art is shown by the manner in which he has treated the face and hands, particularly the right hand of the lady, which is beautifully rendered. From certain differences in the brush work it is not improbable that this miniature was prepared by two artists, one being a specialist in *chihra-numā* or portraiture, and the other in *surat* or figure drawing. There may also have been a third who provided the background.

Roe's interest in miniature painting is shown by the fact that he included a small selection of these among his effects while on his travels, and the subject was brought up several times by the Emperor Jahangir who was equally interested in this form of painting, during his conversations with the Ambassador. On one occasion Roe showed the emperor two miniatures one of which impressed Jahangir greatly, and the possession of which it is evident he coveted. Roe managed to retain this work of art by stratagem and by declaring that it was a likeness of 'a frend of myne that was dead'. Jahangir's eulogies of the portrait which Roe relates verbatim contained the remark that 'hee confessed hee neuer sawe so much arte, so much bewty, and Conjured mee to tell him truly whither euer such a woeman liued'.

As a matter of fact the lady was alive and in England, married to Roe just before he left for India, but the fact was kept secret for certain family reasons, hence the ambassador's diplomatic statement that the original of the miniature 'was now dead'. On Roe's return to England all necessity for any concealment had evidently disappeared, and they were never again separated. That Lady Roe was a devoted companion as well as a woman of strong determination is shown by her staunchness to her husband in several subsequent difficult situations while he was doing duty abroad. The miniature here exhibited seems to bear out this latter quality, which is clearly a portrait representing an aristocratic personage of more than ordinary character.

Dr. *Hidayat Hosain* said that the inscription on the miniature read 'Padshazadī vilayat angriz', the English princess, or more literally 'born of the British King'. The handwriting was modern and the inscription may date from long after the date of the picture itself.

Mr. *M. M. Bose* asked three questions as follows :—

1. Is the art of miniature painting an important art in India ?
2. If so, from where and when ?
3. What is the earliest specimen of miniature painting found, up to the present, in India ?

Mr. *Brown* replied :—

With regard to the art of miniature painting in India, it may be said that it was in its early period generally produced on paper, so that its date corresponds approximately with the introduction of paper into this country. The earliest paintings which may be designated 'miniatures', although actually they were illustrations to manuscripts, appear on the western side of India about the 9th or 10th century A.D., and there are other rare specimens of somewhat the same period which have been discovered in Bengal.

As to whether the art was imported, it may be said that the miniature, in its usually accepted form, was brought into being in India during the Mughal period, by artists from Persia, but 'paintings in little', as they were then called, were, as stated above, produced by Indian artists at an early date.

2. A. L. COULSON.—*The Patwar Meteorite.*

At the September meeting of the Society, when certain additional stones of the Perpeti meteoric shower were exhibited, mention was made of the reported fall of a meteorite near Nangalkot in the Tippera district of Bengal. As a result of enquiries made by the Geological Survey of India, it has since been ascertained that at about 14.20 hours on the 29th July, 1935, a meteoric shower occurred near the villages of Patwar (23° 9′ : 91° 11′), Bhatupara, Gotrasal, Fatehpur, and Majhipara, near Nangalkot, some 20 miles due south of Comilla, the chief town of Tippera district. Patwar is only some 17 miles south-east of Perpeti, also in the Tippera district, which is the locality of the shower referred to above. The two falls, however, are distinct, but it would be interesting to learn of any other occurrence of two separate meteoric showers within 17 miles of each other after a lapse of two and a half months.

So far three specimens, totalling 35,013·5 grams, which fell at the three first-named villages, have been recovered, the largest (23,111·6 grams) falling at Patwar which gives its name to the fall. However, two small additional stones from the villages of Fatehpur and Majhipara have been recovered and sent to the District Magistrate, Comilla; it is hoped that these will be received in time for them also to be exhibited at this November meeting of the Society.

The fall was accompanied by the usual phenomena of light and sound. A dazzling light following a 'loud rumbling noise' is supposed to have been the first indication to the villagers of the fall of the meteorite. The sound is stated to have been so loud and continued that those in the police thana at Chauddagram, some 7 miles to the north-east of Fatehpur, the nearest locality to the thana from where stones were recovered, distinctly heard it. Four reports 'like thunder' were heard in quick succession. One observer adds that a peculiar sound like 'that of an aeroplane' followed the reports; this may have reference to the passage through the atmosphere of the disrupted members of the parent meteorite.

The largest specimen penetrated the ground to a depth of 34 inches.

The parent meteorite appears to have been moving in a west-south-westerly direction. The smallest pieces fell first, followed in succession by the larger. The total rectangular area covered by the shower is roughly about 4½ square miles, the length being some three miles in the direction E.S.E.-W.S.W.

The meteorite has great interest on account of its rather rare composition. It belongs to the group of mesosiderites, being a siderolite intermediate in composition between a stone and an iron. It contains large crystals of olivine and masses of nickel-iron of fair size. It is composed chiefly of nickel-iron, with olivine, enstatite and bytownite, with smaller amounts of schreibersite, troilite, oldhamite, lawrencite and hydrocarbons. Its specific gravity is 4·21.

The Patwar mesosiderite will be described in a paper appearing in the *Records* of the Geological Survey of India. The specimens are exhibited by permission of the Director, Geological Survey of India.

Dr. *Coulson* stated that this was the third successive meeting of the Society at which he had exhibited meteorites. Consequently it was with considerable diffidence that he addressed the Members present, but he claimed their indulgence as the specimens of the Patwar meteoric shower of the 29th July, 1935, were of great scientific interest and rarity, belonging to the sub-group of mesosiderites intermediate between meteoric irons and stones. In order that Members might note the intermediate character of the specimens of the Patwar shower, Dr. Coulson drew their attention to a specimen of the Bahjoi iron meteorite which Dr. Krishnan had exhibited at a previous meeting of the Society. Iron meteorites are far rarer in occurrence than stone meteorites and the Bahjoi meteorite, which fell on the 23rd July, 1934, in the Moradabad district of the United Provinces, was the first iron meteorite recovered in India since the shower of meteoric irons at Samelia in Rajputana on the 20th May, 1921, which was described by your President. The attention of members was also drawn to a typical specimen of a meteoric stone, one of the Perpeti meteoric shower of the 14th May, 1935, which Dr. Coulson had exhibited at the August meeting of the Society.

Dr. Coulson stated that Members would be pleased to learn that the two additional stones, each weighing about a kilogram, that had been mentioned in the account of to-day's exhibit, had been received by the Geological Survey and formed part of the specimens on the table. Altogether five specimens of a total weight of 37,353.28 grams had been recovered from the Patwar fall and this made the fall rank third in the total amount recovered from any particular meteorite fall and in the possession of the Geological Survey of India. It was exceeded by the Merua fall of August 30th, 1920 (71,406 grams), and the Kuttippuram fall of April 6th, 1914 (38,437 grams).

It was interesting to note that the largest stone, weighing some 23 kg., had penetrated the soft ground to a depth of 34 inches, whilst the two next largest stones had penetrated 24 inches. Details as to the depth at which the smallest stones were recovered, were not available.

The third largest stone had been cut in two for purposes of study and the cut surfaces had been highly polished. The structure of the mesosiderite showed up well on the polished surface. The large crystals were either composed solely of olivine or of a granular aggregate of olivine and bytownite felspar. The dull metallic-looking mineral was nickel-iron in one or other of its various alloys. The other minerals present were given in the account of the exhibit.

Finally Dr. Coulson drew attention to the proximity of this fall to the Perpeti fall, Perpeti being some 17 miles north-west of Patwar. The composition of the two meteorites was totally dissimilar, however. He added that while the Perpeti shower covered a rectangular area of some 15 square miles with the shorter side of three miles in the direction of flight of the parent meteorite before it was disrupted, the Patwar shower covered the much smaller area of 4½ square miles, the longer side of three miles being in the original direction of flight.

The President in inviting discussion upon Dr. Coulson's exhibit said that he did not share Dr. Coulson's regrets that he (Dr. Coulson) had had occasion to address the Society upon meteorites at three successive meetings. Considering the great interest inherent in these visitors from outer space everyone would agree that there would be a welcome for all the exhibits of meteorite material that could be placed before the Society.

The present meteorite was one of exceptional interest in that it was a mesosiderite occupying an intermediate position between stony and iron meteorites. Although many meteorites had fallen during his service in India Sir Lewis could not recall that any one of them had been a mesosiderite.

Prof. *J. N. Mukherji* asked whether any systematic determination of the atomic weights of elements found in meteorites had ever been carried out.

Dr. *Coulson* replied that he was not aware of any recent research in this direction.

Baron *W. Ow-Wachendorf* drew attention to the locally so-called 'meteoric iron' surrounding diamonds in South-West Africa. Was that iron really meteoric or was it ironstone derived by lateritic processes from the gravels ?

Dr. *Coulson* replied that probably the latter explanation of the origin of the ironstone was the correct one. Diamonds of course were known to occur in iron meteorites, but it was most unlikely that the 'iron' surrounding the diamonds in the gravels was actually iron and not one of the oxides, and that it had a meteoric origin. Baron Ow-Wachendorf was no doubt aware that it was at Hoba in South-West Africa that the largest known iron meteorite occurred—this weighed 60 metric tons and was still *in situ*.

Mr. *H. Hobbs* asked if there were any elements in meteorites that had not been found in the rocks of the earth's crust.

Dr. *Coulson* replied that there were no such elements. Not all the elements found terrestrially, however, had been found in meteorites, those of high atomic weight, with the exception of the platinum metals, generally being absent from meteorites. The apparent universal absence of barium and strontium may perhaps be accounted for by the paucity of felspathic minerals in the meteorites examined. It was interesting to note that there were two minerals occurring in meteorites that had not been detected in terrestrial rocks as they could not exist unaltered in the conditions of oxidation characterising the crustal regions. The minerals were oldhamite, the sulphide of calcium named after a former Director of the Geological Survey of India, and schreibersite, a phosphide of iron, nickel and cobalt.

Mr. *Van Manen* referred to the article on 'Meteorite' in the 'Encyclopædia Britannica' and stated that he would like further information with regard to three statements made therein. The first was the statement regarding the general similarity of meteorites in chemical composition and the fact that they were supposed to be derived from a single celestial body. The second statement was to the effect that though the earliest recorded fall in China was about 644 B.C., strange to say, until quite recently, no meteorite in that country appears to have been preserved. Was this due to any geographical immunity of China from meteorite falls or to some superstitious awe in which meteorites were held being responsible for their being destroyed by the inhabitants? The third statement was to the effect that with the exception of one meteoric iron found in Pliocene gravels in the Klondike, 'fossil' meteorites are unknown. What was the sense in which the term 'fossil' was used?

Dr. *Coulson* replied that he was pleased that Mr. Van Manen had raised these three points as he recently had had occasion to refer to the article in question when preparing material for a lecture delivered before the Mining and Geological Institute of India at Dhanbad.

The first question raised the vexed problem as to the origin of meteorites. Members were aware of the nature of comets with their relatively small mass spread through a large volume of space. The tails of comets are in a much more finely divided state than the heads which are made up of fairly large lumps for which the gravitational force is stronger than the repulsive force from the sun which affects the tails. These lumps are some feet in diameter comparable in size with large meteorites. Comets are part of the solar system which contains a very large number of them. Their orbits are elliptical and some of the long-period comets can recede away from the sun quite a large fraction of the 25,000,000,000,000 miles separating us from the nearest fixed star. It has been suggested that meteorites are identical with the material of comets and in that case to be moving through space in swarms with definite orbits. However, while certain meteorites may perhaps be the debris of comets, we must look elsewhere for the origin of the greater number of them.

Dr. Coulson referred briefly to meteors, which term is restricted to those cosmical bodies which, entering the earth's atmosphere from without and shooting across the sky, give the appearance of a bright star in rapid motion. Meteors are only a few milligrams in weight but it has been held by some that there is a gradual transition from them to meteorites.

However a study of the times of occurrence of meteor showers shows that they do not agree with meteorites in the months in which they are most plentiful and, also, only one meteorite, the Mazapil iron, has been known to fall during a shooting star display. It has been shown, in addition, that though there is an intimate connection between the orbits of comets and some meteor streams, yet many of the meteors must have come from solar systems other than our own. The parabolic velocity of 26 miles per second, which a body falling from rest at an infinite distance towards the sun attains when it passes the earth's orbit, is the maximum that a body can have if it originated in our solar system. Of course when considering the maximum velocity that a meteorite can have relative to the earth, due account must be made of the velocity of the earth in its orbit. Taking into account also the velocity due to the earth's attraction and neglecting the earth's surface velocity, the maximum velocity relative to the earth with which a meteorite can fall if it originated in our solar system is about 47·4 miles per second and the least about 8·2 miles per second. It has been calculated from the observed velocities of meteors that certain of them must have originated in solar systems other than our own.

If most meteorites have been derived from the disruption of a planet or planetoid in the solar system, the question naturally arises as to when this disruption took place. Here we have the assistance of the very valuable work performed recently by F. Paneth and his assistants in the measurement of the helium content of iron meteorites with a very sensitive apparatus. If meteorites are the scattered portions of our solar system, then their age cannot be greater than that of the solar system itself which is assumed to be about 3,000,000,000 years at the utmost. If, however, meteorites came from other stars, it is possible that the period of their solidification could date back some 10,000,000,000,000 years. Not one of the iron meteorites studied had been found to be older than 2,900,000,000 years and so the solidification date accords well with the assumption that iron meteorites, and we may presume stone meteorites as well, originated not from distant celestial bodies but from our solar system. The date of solidification, also, ranges in time almost up to the date of the birth of the earth and the solar system and it may be that meteorites represent ungarnered fragments from the birth of the solar system and not the product of the later disruption of a planet or planetoid.

With regard to Mr. Van Manen's question concerning the absence of meteorites from China, there is no fundamental reason why meteorites should be more numerous upon one part of the earth's surface than on another. There is thus no reason to presume that meteorites have not fallen in China just as frequently as in other parts of the world and the absence of records may be due to some such cause as suggested by Mr. Van Manen.

The term 'fossil' meteorite was used in the usual sense of the word 'fossil' as being something, in this case a meteorite, entombed in strata that was being laid down contemporaneously. The absence of fossil meteorites, except for the single case of one in the Pliocene gravels of the Klondike, may be due to weathering, metamorphic and other agencies so altering meteorites as to render them unrecognizable as such.

The President, referring to the question of the rarity of fossil meteorites, expressed the view that no satisfactory conclusion could be drawn from the absence of fossil meteorites from all geological formations except for the single case from the Pliocene gravels of the Klondyke. Meteorites appear never to have penetrated far below the surface of the earth, except possibly in the case of meteorite craters; further stony meteorites are very susceptible to weathering, with the result that the collections of the world contain only those stony meteorites that have actually been seen to fall. The number of iron meteorites in the collections of the world is of the same order of magnitude as the number of stony meteorites, but only a very small proportion of these iron meteorites have been seen to fall, the majority of the irons in collections have been found lying on the surface, usually in desert countries such as Chili, South-West Africa, and Australia, where there are no accumulations of vegetation to hide them. Falls of irons are in fact very much rarer than those of stones.

Considering the rarity of meteoritic falls of either composition as compared with the total mass of stratigraphical deposits, and the great liability to decomposition of the commoner of these, the stony meteorites, the chances of finding fossil meteorites enclosed in geological formations appeared to the speaker to be so remote that no conclusion could be drawn from such negative evidence on the date of disruption of the celestial body from which these meteorites must have been derived.

Sir *Lewis* expressed the opinion that concerning the possible sources from which meteorites may have been derived two hypotheses are worthy of serious consideration. One hypothesis is that the solar system was formed from the disruption of a primordial dark sun, due to the close passage of a stellar body from outer space, which by tidal attraction tore off the crust of our dark sun, scattering fragments of this crust into space and exposing the still hot centre of our sun. The disturbing body then passed on and our sun regained gravitational control of its scattered crust with the formation of the planets. Many fragments have naturally remained ungarnered through the ages, and some of these continue to fall into the earth and are the source of the supply of our collections.

The other attractive hypothesis is that which ascribes the formation of the meteorites to a somewhat later date, namely the date of departure of the moon from the earth, assuming that when this happened the earth already had a solid crust. On this hypothesis the meteorites that we now receive represent samples of our earlier earth returning to us.

Each of these hypotheses necessitates the view that the primordial body, either sun or earth, had a solid crust, and enables us to assume that the stony meteorites, the mesosiderites, and the iron meteorites, represent successively deeper levels below the surface of the primordial body.

The investigation into the helium contents of meteorites may enable a choice to be made between these two hypotheses, but this will only be possible if the source of the helium contained in meteorites is known.

Mr. *Hobbs* asked whether hailstones could be termed meteorites.

Mr. *Van Manen* said that in accordance with the etymological sense the word meteor was used by the ancient Greeks for all 'things of the air', or atmospheric phenomena in general, including clouds, cyclones, typhoons, the aurora borealis, ignis fatuus, and rainbows. According to this use of the term airships may perhaps be called meteors. The word meteorite is defined in an authoritative work of reference as a mass of matter from outer space which has fallen upon the earth's surface. As hail is not formed in outer space, hailstones (nor, for the matter of that, snow flakes or drops of rain or 'rains of fishes', of which we have recently heard so much) can strictly be called meteorites.

However, an interesting quotation from Bishop Hall in Webster's *New International Dictionary* speaks of 'Hail, an ordinary meteor'. The same dictionary states that meteorite is 'loosely' used for meteor or meteoroid. Whittier had written :—

> 'In starry flake, and pellicle, All day the hoary meteor fell.'

The matter afforded a good example of verbal 'relativity'.

Mr. *H. Hobbs* referred to the obliquity of fall of certain meteorites and asked for further information in this respect.

Dr. *Coulson* stated that it was usual for meteorites to form small holes when they reached the earth's surface but the nature and obliquity of that hole depended upon the speed of the meteorite. He had already referred to the very great differences in velocity with which it was possible for a meteorite that had originated in the solar system to reach the earth's surface. The cosmical velocity of meteorites was slowed up by the resistance of the earth's atmosphere. Schiaparelli had made experiments on a small ball, 1½ inches in diameter, of specific gravity 3·5. He had calculated that with an initial velocity of nine miles per second, the ball would have a velocity of one-third of a mile per second when it arrived at a point where the barometric pressure was one-sixtysixth of the earth's surface atmospheric pressure ; if the original velocity were 40 miles per second, then the reduction in velocity at the same point would be greater. Thus very frequently meteorites lost their cosmical velocities and fell to earth under the attraction of the earth alone and the heights from which certain meteorites had done this had been calculated by Niessl.

The direction of penetration of a meteorite is not always vertical since the direction of motion of the meteorite is sometimes tangential. Thus the largest stone of the Knyahinya fall penetrated the earth to a depth of 11 feet in a hole which was inclined to the vertical by as much as 27°. Smaller deviations from the vertical are common.

Mr. *W. D. West* referred to the fact that in the current number of *Nature*, there was a letter by Mr. M. A. R. Khan discussing the authenticity of persons ever having been killed by falling meteorites. Could Dr. Coulson throw any further light on the matter ?

Dr. *Coulson* replied that he was unable to throw any further light on the subject but stated for the benefit of Members that the letter in question was written with reference to a review in *Nature* of Heide's 'Kleine Meteoritenkunde' in which it was stated that there is no certain evidence of any person having been killed by a falling meteorite. Mr. Khan referred amongst others to two Indian cases in 1827 and 1870 but the writer of the review concluded that unless the two cases in question are better substantiated than the others mentioned by Mr. Khan, he preferred to accept Professor Heide's statement that 'noch kein einziger, sicher beglaubigter Fall ist vorgekommen, dass ein Mensch von einem Meteoriten erschlagen oder verletzt worden ist'.

Dr. Coulson added that Members would be interested to learn that one of the cases of a near escape cited by Mr. Khan was that of a shepherd at a distance of 12 paces from whom one of the stones of the Naoki meteorite shower of the 29th September, 1928, was stated to have fallen. Dr. Coulson had described this shower in the *Records* of the Geological Survey of India.

The President said that although there appeared to be no definite record of human beings ever having been killed either by falling meteorites or by hailstones, yet there was the record in the Bible of the stones which fell down from heaven. 'And it came to pass that the Lord cast down great stones from heaven upon them.' (Joshua 10, 11.) It is evident that these stones must either have been meteorites or hailstones.

Mr. *Hobbs* stated that he had a cutting from a newspaper giving a record of the death of two persons from falling meteorites.

Dr. *Coulson* said he would like to see this report.

Mr. *L. R. Fawcus* drew the attention of Members to the Greek story of Aeschylus being killed by a falling turtle dropped on his head by an eagle. It might be possible that this story had reference to the fall of a meteorite.

Mr. *Van Manen* referred to the general Indian belief that falling coconuts never harm or kill people.

3. JOHAN VAN MANEN.—*Some Tibetan Tankas.*

Of late years increasing interest has been shown in Tibetan scroll-paintings, or *tankas*. G. de Roerich has in 1925 published a valuable monograph on the subject in which a large number of such *tankas* were reproduced. An appreciable amount of material on the subject is now available in print. The statement made in 1925 that 'our present knowledge of Tibetan pictorial art is not sufficient to enable us to discuss various schools of art' remains true.

It is, nevertheless, possible to discuss special points which from time to time arise. The purpose of this exhibit is to draw attention to a style of painting of a very distinct character, of which the examples known to the exhibitor are of a high artistic quality. The style is in contradiction to the one of the majority of *tankas*, which are executed in a great variety of colours on the same scroll, and is limited to the use of a black background with all outlines in thin gold lines and the use of only red, or red and white, to colour clothing and skin.

A few samples are exhibited, showing various stages of development, and for purposes of comparison samples of the more common type of *tanka* are placed in juxtaposition.

Mr. *Van Manen* said that though all present would probably have seen many tankas, they might not realize how scanty detailed knowledge was on the subject of this fascinating kind of Tibetan art. Safe canons for dating had not yet been evolved and this particular branch of enquiry was complicated. Presumable age was often a matter of appearance. Tibetans scarcely ever date their tankas, but the Nepalese very often date theirs. From such dates it was apparent that the freshness of a tanka was greatly influenced by the manner of its preservation. Copies that looked recent might have dates going back as much as three or four centuries, simply because they had been carefully preserved. Other specimens might appear old though their dates showed their newness, again simply because they had been carelessly kept and roughly handled. Ritual fumigation was an important element in this matter. Though it was true that in modern times stereotyped models had been and were being reproduced as copies, recognizable by crudeness of colouring and uncertainty of outline, it was equally evident that there are many bad old pictures as well as good new ones. A similar uncertainty existed with reference to schools. Though different types may be recognized the time for classification has not yet come. The speaker would however suggest that at least one broad division may already be made, however general such a division would have to remain for the present. He thought there was a definite difference between what he would call the Indo-Tibetan style and the Sino-Tibetan style. A curious observation which he has made was that a small number of tankas which he had seen looked almost Japano-Tibetan. He would however not enter into that matter. Quite apart from date or school there is a division according to manner. In his own collection he had a few specimens of an entirely rare kind, more or less modernistic, and executed in a crayon-like manner. His subject for the evening was limited to a class of paintings described in the introductory paragraph on the programme. He had the impression that these specimens must be old, an opinion, endorsed, for what it may be worth, by his Tibetan friends. The outlines were well-finished and delicate. There was a sureness of touch of remarkable vigour and skill. The devils were ugly, but they were meant to be ugly. The accessory figures showed graceful delicacy: miniatures of high quality. He had enquired whether this type of painting might be related to a particular sect, and specially whether it might perhaps be reserved for Tantric representations. He was told that this was not the case. He would leave the matter there and invited the audience to inspect the tankas in detail.

Mr. *Percy Brown* remarked :—

As to the age and other particulars of the Tibetan Temple Banners or Tangkas, as these have been prepared for centuries almost always according to the same conventions and traditions, it is difficult to classify them into any reliable periods. Some of the tangkas recovered by Sir Aurel Stein from sites in Eastern Turkestan and known to date from 8th, 9th and 10th centuries A.D. differ very little in subject-matter and technique from those prepared at the present time. Appearance and condition is also an unreliable guide, as some tangkas exposed on the walls of the *gompas* speedily take on a deposit of smoke and look very old, while others carefully rolled up retain their fresh colouring for a long period.

It is doubtful whether much help in classifying and dating these banners can be expected from the monasteries, as these institutions have little reliable knowledge on the subject, although occasionally some valuable and intelligent information is forthcoming from these sources. It is more likely that a beginning will come from India, either through inscriptional evidence or by comparing the technique of these tangkas with that of some of the Indian schools of painting. Once a fixed point is indicated and a start made some progress may be anticipated, but at present any dating of these is very largely speculation.

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DECEMBER, 1935.

An Ordinary Monthly Meeting of the Asiatic Society of Bengal was held on Monday, the 2nd, at 5-30 P.M.

PRESENT.

SIR LEWIS FERMOR, KT., O.B.E., D.SC., A.R.S.M., F.G.S., M.INST.M.M., F.R.S., F.A.S.B., President, in the Chair.

Members :

Agharkar, Dr. S. P.
Auden, Mr. J. B.
Bogdanov, Mr. L.
Brahmachari, Sir U. N.
Brandt, Dr. A. Klebe
Brown, Mr. Percy
Chanda, R.B. R.
Chakrabarti, Mr. S. K.
Chatterjee, Mr. P. P.
Chatterji, Dr. S. K.
Coulson, Dr. A. L.
Darbari, Mr. M. D.
Dey, Mr. Mukul
Driver, Mr. D. C.
Dutt, Mr. M. N.
Gangoly, Mr. O. C.
Haq, Mr. M. Mahfuz-ul
Heron, Dr. A. M.
Hobbs, Mr. H.
Hora, Dr. S. L.
Majumdar, Mr. N. G.
Manen, Mr. Johan van
Neogi, Dr. P.
Olpadvala, Mr. E. S.
Prashad, Dr. Baini
Rao, Mr. U. S.
Stagg, Lt.-Col. M.
West, Mr. W. D.

Visitors :

Brown, Mrs. Percy
Fermor, Lady
Pulley, Lt.-Col. O. C.
Sarkar, Sir Jadunath

The minutes of the last meeting were read and confirmed.

The General Secretary reported receipt of six presentations of books, etc., which had been placed on the table for inspection.

The General Secretary announced that the following candidate would be balloted for as an Ordinary Member :—

(29) *Blakiston, J. F.*, Director-General of Archæology, New Delhi.
Proposer : Sir Lewis Fermor.
Seconder : A. M. Heron.

The General Secretary reported the death of :

Dr. H. F. Osborn (An Anniversary Centenary Member, 1934).

Dr. Baini Prashad read an obituary notice of Dr. Osborn (see page 221).

The General Secretary reported the following loss of membership, since the previous meeting, by death :—

(13) F. Williamson (An Ordinary Member, 1934).

The General Secretary reported the following loss of membership, since the previous meeting, by resignation :—

(20) Karmajogi Ray (An Ordinary Member, 1934).

The General Secretary reported that there had been no lapses of election, since the previous meeting, under Rule 9.

The General Secretary reported that there had been no withdrawals of application, since the previous meeting.

In accordance with Rule 48(*a*), the General Secretary reported that the Council had adopted certain Regulations regarding the award of the Indian Science Congress, Calcutta Prize, last year, which had not been announced in the Monthly Meeting as usual.

The Regulations are as follows :—

REGULATIONS REGARDING THE AWARD OF THE INDIAN SCIENCE CONGRESS CALCUTTA MEDAL.

(1) The Medal shall ordinarily be awarded at the Ordinary Annual Meeting of the Asiatic Society of Bengal, in February, in such years as the session of the Congress is held in Calcutta.

(2) The Medal shall be bestowed on a person who, in the opinion of the Council, has rendered conspicuously important services to the Indian Science Congress, or on a Member of the Indian Science Congress who, in the opinion of the Council, has made conspicuously important contributions to science.

(3) In any year preceding one in which the award will be due the Council shall, at a meeting preceding the Ordinary Monthly Meeting in November, appoint an Advisory Board consisting of not less than Five Members.

(4) The Advisory Board shall be termed 'The Indian Science Congress Calcutta Medal Advisory Board'. This Board shall include the Biology, Physical Science, Anthropology, Medical and General Secretaries. The Board shall appoint a Chairman from amongst its members who shall have a casting vote (in addition to his own vote) in the event of the number of votes being equally divided.

(5) The General Secretary shall call a meeting of the Advisory Board on the first convenient date subsequent to the first Monday of December, at the same time requesting members to bring with them to the meeting detailed statements of the

work or attainments of such candidates as they may wish to propose. The General Secretary shall also place before the Board for consideration detailed statements of the work or attainments of any other candidate submitted by any Fellow of the Society. The Board shall make such arrangements as may be necessary for the selection of a name to be submitted to the Council at its December meeting.

(6) The Advisory Board shall submit to the Council the name of the person to whom, in the Board's opinion, the Medal should be awarded. It shall be open to the Board to report to the Council that no award should be made for the year ; and, in such case, provided the Council concurs, a new Advisory Board shall be constituted in the following year, and so on, from year to year, in the manner prescribed above, till recommendation is made for an award and accepted by the Council. The period mentioned in Regulation (1) shall always be counted from the year of the award.

Papers were presented, and Exhibits were shown and commented upon, as detailed below.

The Chairman announced the result of the ballot for the election of the Ordinary Member and declared that the candidate has been duly elected.

The Chairman announced that a meeting of the Medical Section had been arranged to be held on Tuesday, the 17th December, at 6 P.M.

The following papers were presented :—

1. N. L. BOR.—*The Oath among the Daflas.*

Introductory note on the locality, history, and characteristics of the Daflas.

The psychological background. The sorcerer and his stock-in-trade.

The sorcerer's implements and materials. The association of ideas connected with them. The sacrificial post.

Two classes of oaths : of ultimate and immediate results.

Ordeals by boiling water and hot iron. Record of cases observed.

Detailed descriptions of the oath on the tiger's tooth, the oath followed by an ordeal by boiling water, the oath followed by an ordeal by red-hot iron, and the 'death'-oath.

In the absence of the author Rai Bahadur *R. Chanda* presented the paper, giving an abstract of its contents. He said that the paper was well-written and contained valuable information. He had to draw the attention of his hearers to one remarkable aspect of the paper. The author reported some strange cases of ordeals, one by boiling water, and two others where death followed after the taking of a false oath. The last two might be attributed to natural cases, but the ordeal by fire was incredible. He doubted whether the author took proper steps beforehand to prevent deception. The hand of the subject should have been examined before he was allowed to dip it into boiling water, and again when he took it out. Such records were certainly of value but should be critically examined. The speaker referred to the well-known dry-rice ordeal prevalent throughout India, based on the fact that a nervous condition of the subject prevented normal salivation.

Sir *Lewis Fermor* remarked that a rational scientific explanation was possible of the case of a person undergoing successfully the ordeal of plunging his hand into boiling water or oil or molten lead. All that was necessary was for the hand, prior to immersion, to be coated with some substance that on volatilization would produce a protecting covering of vapour round the hand so as to prevent the boiling or molten liquid from coming in actual contact with the hand. This was the basis of the well-known Leidenfrosts phenomenon, in which a liquid in the spheroidal state is supported on a cushion of its own vapour.

He might claim to have undergone ordeal by liquid oxygen, when at College a drop of liquid oxygen was poured into the palm of his hand. The temperature of this liquid oxygen was, of course, nearly 200° below zero centigrade, and had the liquid come in contact with his hand, it would have produced a very severe burn. The secret of surviving such ordeals satisfactorily was to make their duration as short as possible and to remove the hand before the protecting cushion of vapour had disappeared and thus permitted the cold or hot liquid actually to make contact with the hand.

Mr. *Van Manen* said that he considered the word incredible too strong an expression, indicating a prejudgment. Though caution and discrimination were always desirable they should not extend to *a priori* scepticism. The subject of ordeals had an extensive history. Natural explanations of strange observations had often been plausibly given. He remembered a discussion on ordeals by liquid resin in the Dutch East Indies in which it was suggested that the richer of the parties concerned bribed the officiating priest to furnish resin with a lower melting point than to his poorer rival. Other fire ordeals had been explained by a previous coating with alum invisible to superficial observation. On the other hand there were records of such strange phenomena as stigmata, immunity to pain in a hypnotic condition, hypnotic rigidity, and so on, and the whole range of instances of susceptibility to suggestion amongst primitive races, self-induced or otherwise. One should carefully refrain from dogmatic scepticism. If a careful and unsuspected observer gave a detailed record of observations in the field, closet-students in the city should not immediately lay down what can and cannot be. We should remember the gibe in Goethe's Faust where Mephistopheles says :—

> Daran erkenn' ich den gelehrten Herrn !
> Was ihr nicht tastet, steht euch meilenfern ;
> Was ihr nicht fasst, das fehlt euch ganz und gar ;
> Was ihr nicht rechnet, glaubt ihr, sei nicht wahr ;
> Was ihr nicht wägt, hat für euch kein Gewicht ;
> Was ihr nicht münzt, das, meint ihr, gelte nicht.

It was better to listen, and to file provisionally for reference, until sufficient data for analysis and judgment should be available, than to judge prematurely. As far as the reported cases of death were concerned, there existed ample testimony concerning remarkable cases, amongst nature people, of a power to 'give up the hold on life', of people simply determining not to continue living and duly dying in consequence. Bodding has an interesting passage on this subject in his *The Santals and Disease*, p. 8.

Prof. *P. Neogi* said that ordeals have psychological bearings. The well-known 'rice' ordeal is based on the psychological difference in the culprit and the innocent person causing the secretion of different quantities of saliva. The result would be that the rice coming out of the mouth of the culprit would be dry, as he would be so frightened out of his wits as not to secrete any saliva, whilst the innocent person would secrete a sufficient amount to moisten the rice.

In the case of the 'boiling water' ordeal mentioned in the paper the culprit would be afraid to put his hand into the water. The innocent man would keep his hand perhaps too long in it in order to prove his innocence and hence might get his hand scalded.

Mr. *U. Shanker Rao* drew attention to the recently reported fire-walking test made in London. Pictures had appeared in the *Daily Mirror* and other illustrated papers. The subject had been discussed in one of the recent numbers of *Nature*. The speaker registered his disagreement with the attitude of Rai Bahadur R. P. Chanda.

Dr. *Baini Prashad* remarked that Mr. Bor's observations were of value as records of oaths, and were not submitted as critical studies on or explanations of the ordeals undergone by the Daflas in connection with oaths on special occasions.

Mr. *P. P. Chatterjee* said :—

Compurgation and ordeals—such as putting the hands into boiling water, walking on red-hot iron, etc.—are spoken of as prevalent among the Druids in old Britain. In India also such ordeals were common in ancient days. Fire ordeals are sometimes explained by the suggestion that at a certain very high temperature the hand will not, in accordance with some law of thermo-dynamics, be injured or equally so through some psychological factor in accordance with the law of dominant mental impression. Either the phenomenon is the result of the operation of some law of thermo-dynamics, or due to the action of the law of dominent mental impression on the subconscious mind, a subject for the experts in psychology or calorimetry. In his remarks the speaker had assumed it to be a fact that innocent persons had in many cases come out of the ordeals unhurt, as history had recorded such cases ; otherwise trial by compurgation or ordeal would not have remained prevalent for so long a time.

Mr. *Chanda* replying to the various speakers said that he had no quarrel with them in so far as they pleaded for the open mind. On the other hand openmindedness should not do away with a critical and scientific spirit. Caution should not go to the other extreme of credulity. He wished to make it clear that what he had said had not been intended in a spirit of prejudgment. All present would admit that the subject of ordeals was a mysterious one, as well as an interesting one, and that Mr. Bor had given a valuable description but no definite explanation.

Sir *Lewis Fermor* remarked that the aim of the paper was not to elicit a general discussion on the subject of judgments by ordeals and suggested that if no one had any further remarks to submit regarding the oaths of primitive people in general or of the Daflas in particular the meeting might now pass on to the next paper.

2. M. DHARMARAJAN.—*Anatomy of* Otolithus ruber (*Bl. & Schn.*). *Part I. Endoskeleton.*

Among the students of Zoology in the South Indian colleges, there has been a long-felt need for a suitable work dealing with the anatomy of a local Teleostean fish. With a view to supplying this demand the author has chosen *Otolithus ruber*, a large and edible species of Sciaenid fish, common throughout the Coromandel Coast, and in this paper a complete account of its endoskeleton is given. Detailed descriptions of all the principal sections of the axial and appendicular skeleton are given with illustrations.

In the absence of the author Dr. *S. L. Hora* communicated the gist of the paper and remarked that a subject of this nature does not lend itself to being read out in detail. The material is only useful to those who study this species of fish, as a type, in South Indian Universities, or to specialists who may use the data so laboriously collected by the author for purposes of a comparative study of fish skeletons. Last year the Society had published a similar paper on the skeleton of Rohu (*Labeo rohita*) for the benefit of Northern Indian Universities, and in publishing the present paper the Society would be helping the Universities in the South. The students of zoology in India had hitherto been studying European types and had consequently considerable difficulties in obtaining the necessary material in a proper state of preservation. Within the last decade several valuable memoirs had appeared on Indian types and the teachers and students were finding them very useful. The present paper would be a valuable addition to suchlike memoirs and it was hoped that the author would not delay the publication of an account of the soft parts to complete the memoir.

The following exhibits were shown and commented upon :—

1. Sir Lewis Fermor.—*An Iron Horse from the Central Provinces.*

This exhibit was obtained some 32 years ago from the top of a hill of manganese-ore in the Chhindwara district. The manganese-ore cropped out in large black masses, which in one place had been daubed with red paint and treated as a village god. Lying about were a number of clay horses and an iron one. This hill has since been worked as a manganese mine, and is now represented by a large hole in the ground.

The interest of this specimen is perhaps three-fold. In the first place it has been exposed to the moist air of Calcutta for over 31 years, without any appearance of rust, from which one can deduce that it is made of very pure iron, as in the case of the iron pillar at Delhi. Its age, of course, is unknown.

The second point of interest is that it must be regarded as an example of primitive art. It is made mainly from three pieces of iron—one piece forming the head, the body and the tail, another piece the front pair of legs, and a third piece the hind pair. The way in which the pairs of legs are bent over the body provides a representation of a saddle. In addition, there are two extra small pieces of iron welded on to form the ears. Two touches of vermilion on the head suggest the eyes. The horse is so constructed as to be unstable when standing on its four feet, but to be stable standing on a tripod consisting of its hind legs and tail. It is a little over 7 inches long, and is in consequence less than one hand high !

I have shown this horse on occasion to many people, and no one appears to have seen a similar horse before, but—and this is the third point of interest—it has been suggested to me that it should be compared with the horses that are offered to the Southern Indian village deity known as Iyenar—a beneficent male deity, who is regarded as the village watchman and whose duty is to patrol the village and fields at night. If this suggestion is correct, it is an indication of the extension of this South Indian deity as far north as the Chhindwara district in the Central Provinces. An account of Iyenar is given in Bishop Whitehead's 'Village Gods of Southern India'. These village gods, according to Bishop Whitehead, date from before the Aryan invasion and must be regarded as Dravidian deities. The Gonds of the Central Provinces are, of course, Dravidians, and it is not, therefore, surprising that worship of this deity Iyenar may have extended to the Central Provinces. I was not, however, given any name for the deity, and have no knowledge whether there is any local name for Iyenar in the Central Provinces.

After showing his exhibit and explaining it in the terms of the description given in the meeting notice, Sir *Lewis Fermor* invited Professor *P. Neogi*, as an authority on the subject of iron in ancient India, to contribute to the discussion.

Professor *Neogi* said:—

As regards the iron in the horse it is to be remembered that after the Neolithic age Northern India had a copper age and Southern India an iron age so far as implements are concerned. All iron, beginning with the iron pillar at Delhi to the iron pillars at Dhor and Mount Abu, the girders of Puri, Bhubaneswar, and Konarak, down to the Mughul cannons, has been found on analysis to be pure wrought iron. Therefore, without analysis it can safely be said that the iron of the horse now exhibited is pure wrought iron.

As regards the ethnological importance of the exhibit, it is rather remarkable that Aryan mythology has many animals as the mounts of Aryan gods and goddesses, such as the lion, the peacock, the eagle, the elephant, and even the mouse, but not the horse (except perhaps as a duplicate mount of Indra, and as connected with the sun-god with seven horses to his chariot). The iron horse therefore may be of Dravidian and not of Aryan origin. The primitive nature of the workmanship of the horse points perhaps to a prehistoric age and if that should be proven to be actually the case the exhibit would be an important one in the history of iron in ancient India.

Mr. *U. S. Rao* remarked:—

A point of particular interest, specially to naval architects and marine engineers, is whether this metal has been rested by immersing in salt water and examined as to whether it would remain clean without the appearance of rust. If it were possible to manufacture this metal so that it should not rust even in contact with salt water it would probably revolutionize ship building.

Mr. *Percy Brown* remarked:—

With regard to the statement in Sir Lewis Fermor's note that 'lying about were a number of clay-horses', Mr. Percy Brown observed that on more than one occasion in the Punjab his attention had been called to a collection of small terra-cotta models of horses forming a mound near a shrine. These ranged from a mass of old and disintegrated examples in the centre of the pile to a number of perfect specimens on the fringes which had apparently only recently been added. In answer to his enquiry he was told that a saint, or *fakir* was buried on the spot, who during his lifetime had shown an exceptional fondness for horses, an explanation which however he did not consider altogether satisfying.

As to the particular horse exhibited by Sir Lewis, he noticed that its true pose was evidently rampant, and that that posture was always the one represented in the seven coursers of *Sūrya*. He therefore raised the question as to whether this iron example was not one of the steeds of the Sun God, indicating that the mount was associated with Sun-worship.

In any case a most interesting fact connected with this particular specimen was its artistic character, for as a type of primitive art, it was in a class by itself. In view of the cult in Europe for works of this nature, of primitive and elemental art often of vast antiquity, he thought that if it were exhibited there it would create no little sensation.

Mr. *Van Manen* referred to the custom amongst the Bhils of making offerings of rude images of horses. It had been suggested that these horse-images may be intended as steeds on which the spirits of the dead may ride to heaven. The Koravas believe that after death a good man's spirit may enter the body of a horse, a cow, or some other higher animal. In Gujrat the worship of Ghora Dev, the horse-god, is common, and clay images of horses are placed round a central shrine. The Gonds likewise have a Ghor Deo, or horse-god, also named Koda Pen.

With reference to the South Indian horses, striking figures, often of considerable dimensions, standing in little groups in fields on the outskirts of villages, he would indulge in a curious speculation. He recalled a story in the *Arabian Nights,* which he for the moment could not locate again, speaking of such horses, petrified during the day and coming to life in the night. He wondered whether this story had its origin in the South Indian custom.

Though not strictly relevant to the topic under discussion he would like to mention that Mr. Chintaharan Chakravarti had told him that a story regarding Urvaśī being transformed into a horse by day, resuming her own shape by night, occurs in the *Daṇḍi-parva,* a well-known old Bengali composition. The Kinnaras have horse-faces (*turaṅga-vadana*). In the ritual literature of Bengal a number of old Bengali MSS. refer to a deity called Trailokyadeva or Trailokya Pīr who rides on a golden horse with a silver saddle. A hymn attributed to Śaṅkarācārya mentions horses and horse-borne chariots among the 64 objects offered to the supreme goddess, Śakti.

The place of the horse in Indian folklore, mythology and superstition was an interesting subject of study. We lacked for India a treatment similar to that under the word Horse (Pferd), and its combinations, in the magnificent German cyclopædia of German superstition. He would however draw attention to Van Gulik's recent monograph on *Hayagrīva : the Mantrāyanic Aspect of the horse-cult in China and Japan,* Leiden, 1935.

Sir *Lewis Fermor* observed that his horse was not a god to whom offerings were made, but the offering itself.

Mr. *Mukul Dey* said :—

All Indian potters of to-day still make clay horses for the Goddess Śītalā, who rides on a donkey. People supplicate Śītalā against small-pox, cholera and other diseases. In every village one may find such horses, and in some cases elephants, lying under trees, where the villagers come to worship them periodically.

Dr. *Suniti Kumar Chatterji* said :—

The cult of the horse is an old one in India. In the *Ṛg-Veda* we have already *Dadhikrāvan,* a divine horse, a form of *Agni,* the fire god. Even at the present day it prevails all over India, and it forms part of the popular religion, Hindu or Musalman. The shrines of Muhammadan *Pirs* or Saints usually have crude terra-cotta horses as votive offerings, heaps of these sometimes being found near popular shrines. Actually some of these *Pirs* are known as *Ghoṛā-Pirs* or Horse Saints from these offerings. No one can tell why figures of horses are offered to Musalman *Pirs* : but this would seem to be merely a survival in popular Islam of an older cult replaced by it, at least outwardly. The old gods never die, or are at least very hard in dying. Probably a horse-cult was known in Pre-Aryan India, and it has continued down to our day. Images of horses are offered also to some Hindu temples, particularly in West Bengal. In the Bankura district, figures of terra-cotta horses, and sometimes of elephants, are dedicated to the deity known as *Dharma*. This *Dharma* cult, as the late MM. Haraprasad Shastri showed, is a survival of popular Buddhism within popular Hinduism (Brahmanism). The shapes of these West Bengal horses have some resemblance to those in the Dravidian country and they are sometimes quite as big as in the south. Islam in India replaced Buddhism and Brahmanism, and in the process took over a great deal from these cults ; clay horses in shrines, whatever they mean, are a survival of primitive popular religion through Buddhism-Brahmanism and Islam.

The iron horse exhibited by Sir Lewis Fermor may be or may not be connected with the horse cult. It may be questioned whether it is really pre-historic. It does not look to be a horse rampant, but it is meant to stand on its four legs. Stylistically its shape reminds me of the horse in Northern European Art—for instance in Celtic copies of Greek coins, and in Early Germanic Art. Then, again, from its shape, one may ask whether it is a cult figure, or an ornamental one, or merely a horse's bit in the shape of a horse. Similarly figures forming decorative horse gear have been found elsewhere. At any rate, the figure is remarkable from many aspects—metallurgical, religious, mythological, and ethnological, and deserves careful scrutiny by specialists.

Sir *Lewis Fermor*, in reply to the discussion, thanked the members present for the interest they had taken in his little exhibit. With reference to the various points raised, he wished to emphasize that the specimen had been in Calcutta for 31 years without rusting, and that no special care had been taken to prevent this. Also it was necessary to emphasize that this horse was one of a group of horses that had been offerings to a local deity. There was no chance of the specimen being merely a horse's bit as suggested by Dr. Chatterji, unless all the clay horses at the same spot could be so regarded. As regards the stance of the horse, it seemed undoubtedly to be rampant as it stood very securely upon its hind legs and tail, and was very unstable on four legs, one of which actually does not touch the ground.

2. PERCY BROWN.—*Miniature Painting of a Mughal Prince.*

This portrait, which was acquired in Kashmir some years ago, has been identified as Prince Dara Shikoh, eldest son of the Emperor Shah Jahan (1627–58). There are authentic portraits of this prince to which this miniature bears a strong resemblance. The portrait is rather larger in scale than the usual Mughal miniature as the face itself measures over 3 inches in length.

The miniature is an excellent example of the style of painting which prevailed at the Mughal Court towards the middle of the 17th century, and is most probably a contemporary portrait taken from life. It is representative of the Mughal School when it had just passed its meridian under the Emperor Jahangir (1605–27), but in spite of this it is a significant work of art. It has every proof of being a good likeness, and its outlines are drawn with that dexterity that the best artists of the time invariably possessed. There is realism in every brush form, nothing is suggested, all is clear and distinctive, even to the slight degree of shading which was beginning to appear in the art at this time.

The subject of this portrait had a tragic career. We see him as a youth in a magnificent miniature of a scene preserved in the Bodleian Library at Oxford, where his father sits in Durbar surrounded by the members of his Court, Dara Shikoh and his younger brother Shuja attended by their tutor standing in respectful attitudes before the throne. Again he bestrides a prancing horse in true cavalier style in a picture in the Indian Museum, Calcutta. Later, however, Dara became the object of his younger brother Aurangzebe's intrigues which finally ended in his death, by which undoubtedly the Mughal dynasty lost a very promising member. Dara Shikoh possessed that interest in the arts which is the hall-mark of his family, and in the India Office Library there is a very precious album of pictures collected by this prince and bearing his name. History, and in any case the art history of Hindustan, might have taken a very different course had destiny allowed Dara Shikoh to succeed his father Shah Jahan.

One point about this miniature has a special interest. Towards the upper margin, in somewhat faint lettering, there is inscribed in Hindi characters what is presumed to be the name of the artist, Hunhar. There are several examples of miniature painting attributed to this artist among the collections of this school, and he appears to have been one of the leading painters at the Court of Shah Jahan. Except for these products of his brush little else is known of this Mughal painter.

Mr. *Percy Brown* remarked :—

This miniature, although found in Kashmir, was clearly not a production of the artists of that State, but an example of the Mughal *kalm*, as this art was practised by the painters at the court of Delhi towards the middle of the 17th century. It is no doubt a contemporary portrait of the Prince, of whose features a small 'thumb-nail' sketch would be made from life, and the picture worked up with great care and elaboration from this original impression. It is an exquisite example of the marvellous dexterity of brush-form and line-work attained by the exponents of this school, the outline of the profile being drawn with a sure and sensitive touch, while the eyes and ears are admirably rendered. Yet with all these qualities it did not represent the art quite at its best period, there is a stiffness and a slightly stylized appearance in the miniature as a whole, indicating the first symptoms of the decline.

The subject of this portrait lived his last few years in an atmosphere of tragedy, when, relentlessly pursued by his brother Aurangzebe, he was forced to take refuge in the trackless wastes of Sind, where several of his family died of heat and thirst. Eventually he was taken prisoner and executed. There are no indications of these troubles on the face in the portrait which bears a calm and serene expression, so that the sketch was obviously taken before these events began to cloud his short life.

With reference to the album of some 40 pictures inscribed with this Prince's name, and now preserved in the India Office Library in London, these show that Dara Shikoh had an intelligent taste in art but that he was also catholic in his views, as this *muraqqa* contains besides Indian miniatures several European engravings including one depicting 'St. Catherine of Siena' bearing its own date of A.D. 1585. Something of the mantle of his great grandfather, the Emperor Akbar, seems to have fallen on this young man and inspired him to form such a collection of pictorial art.

Mr. *O. C. Gangoly* enquired of Mr. Brown if he had sufficient data to establish the identity of the portrait. So far as the speaker knew there are three portraits said to represent Dara Shikoh—one in the Louvre museum, another in a German collection, and the third in the Boston museum. It would be useful to compare these portraits in order to consider the authenticity of Mr. Brown's exhibit.

Mr. *Van Manen* said that a happy coincidence enabled him to reply to Mr. Gangoly's question. Dr. Hermann Goetz, at present resident in the Hague, had recently published an extremely detailed and valuable article on one of the sources for Nicolaas Witsen's work on North and East Tartary. Dr. Goetz had been so kind as to present to the Society's library a reprint of this article, which had originally appeared in the Dutch *Tijdschrift voor Geschiedenis*, Volume 50, No. 3, page 241. From this article it appears that the State collection of prints in Amsterdam possesses an album containing 49 miniatures of Indian Emperors, Princes and Dignitaries. This album is traced back to the possession of Nicolaas Witsen, the famous burgomaster of Amsterdam, who after his voyage to Moscow in 1664 commenced collecting materials for his big book on Tartary. The writer adds that it is even possible that this album may have originally belonged to Rembrandt. He comes to the conclusion that the album originated between March and September, 1686. He further shows that as far as is known at present, Holland was the first country to begin collecting specimens of Indian art on a large scale. Dr. Goetz further established the fact that fully 250 years ago extensive collections of Indian miniatures had been imported into Holland direct from India. Now, during 1724–1726 François Valentyn (1666–1727) published his enormous work on *The New and Old East Indies*. In the second part of the 4th volume he deals with the lives of the Great Moghuls, profusely illustrated with steel engravings, evidently based on Indian originals. On page 255 there is found a portrait of Dara Shikoh (spelled by him as 'Dara Sjecoer'). The speaker would pass round the illustration for comparison with Mr. Brown's exhibit and it would be found that both portraits were undoubtedly identical. Valentyn began the writing of his work shortly after 1714, less than 60 years after Dara Shikoh's death. The various dates just now enumerated furnish a strong argument for the probability that the existence of a portrait, published in Holland in the year 1726 and described as that of Dara Shikoh, enables us to establish the authenticity of an identical portrait purchased a few years ago in Kashmir. Is it possible to suggest that the Kashmiri portrait (which has been identified as a portrait of Dara Shikoh) may have been derived from the old Dutch publication ?

Mr. *Mukul Dey* observed that the inscription on the portrait giving the name of its painter was undoubtedly in a very recent hand so that it was therefore improbable that the portrait could be even remotely contemporaneous with its subject.

Mr. *Van Manen* replied that it is a well-known fact that Indian sellers of antiquities often write identifications, attributions or dates on pictures and manuscripts. Lateness of such an inscription is no proof whatsoever of the age of the object itself.

3. M. MAHFUZ-UL HAQ.—*A note on a rare MS. of* al-Aghrāḍ-al-Ṭibbiya (*an encyclopædia of medical science*).

On account of the lateness of the hour this exhibit was postponed to the next meeting.

OBITUARY NOTICES.

Rev. Fr. H. Hosten, S.J.

(1873–1935.)

The relations between the two great academical institutions of Park Street, St. Xavier's College and the Royal Asiatic Society of Bengal, have been varied and intimate. For the last seventy years at least the Society has always had one or other of the Jesuit Fathers amongst its Associate Members. From 1897 to 1899, Archbishop P. Goethals, S.J., was a Vice-President of the Society. The contributions of the learned Fathers to the Society's publications have been many and important. Amongst the most prolific of such writers was the late Fr. Henri Hosten, S.J., who died in Brussels on the 16th of April, 1935, in the 63rd year of his life. Father Hosten had been an Associate Member of the R.A.S.B. for a quarter of a century, having been elected as such in December, 1910. An indefatigable worker, he contributed 36 papers to the Society's *Journal* and 2 to its *Memoirs*, besides leaving behind the MSS. of a number of papers for subsequent publication.

Father Hosten was decidedly a 'character', described by one of his colleagues as to the end of his life 'un grand enfant'. His devotion to antiquarian research knew no bounds; perhaps sometimes went beyond them. He was of a simple, friendly, guileless character, yet not without explosive matter in his make up. In polemics his whole-hearted zeal sometimes made him hit harder than he perhaps intended or really wished and never with lasting rancour. One of his own colleagues once said when about to deliver a lecture: 'Keep Father Hosten at home. I do not want him to pick holes in my lecture'. He had what the Belgians call 'een strijdbare ader', a combative vein, within him. Nevertheless, this side had practically only the effect of accentuating his winning qualities. As a result he was a much-beloved man wherever he went, be it as priest or scholar. Innumerable anecdotes are being told about him; how a high-placed lady once visited the College and was received by him as what she described 'un Jésuite en négligé'; or how he was so enthusiastic in teaching Latin that his pupils would actually come to blows over a point of Latin syntax; and in the archives of our own Society there are records of some whirlwinds raised by him in connection with his publications.

None of these things, however, could diminish the respect and affection which he inspired.

He was born at Ramscapelle in Belgium, on March 26th, 1873. He entered the Society of Jesus in September, 1891. In his youth he was suspected of being a consumptive and in 1893 came out to the East, to Kandy in Ceylon, with an expectation of only three more months of life. He took part there in the foundation of the Papal Seminary and began teaching with a dozen pupils. Instead of dying, he flourished. In 1906 he was ordained a priest in Kurseong.

In the meantime, before coming North, Father Hosten had already begun to study the dolmens, cromlechs and pottery of South India when being stationed at Shembaganur, near Kodaikanal. It was then also that he began his autodidactic studies of Portuguese. Soon after he was transferred to the Calcutta Archdiocese where he laboured for 29 years. When stationed in Kurseong he founded there together with the Fathers A. Wouters and P. Feron an Indian Academy.

Soon Father Hosten made himself thoroughly familiar with the Spanish, Portuguese and Italian of early missionary reports. The Latin and French were already there from the beginning. These documents became his passion; their study and publication his life-work. His powers of application were of a very high order and his typewriter was a singularly hard-worked instrument. His manuscripts, single-spaced, with the accents and corrections in the finest, microscopic, spidery writing, were marvels.

Father Hosten published anywhere and everywhere, wherever an opportunity was found; in newspapers, popular magazines, academic journals and as separate publications.

His most substantial publication perhaps was that of the memoirs of Monserrate concerning his mission to the court of Akbar, published in this Society's *Memoirs*. But his total output was exceptionally varied and numerous. The Goethals Library Catalogue contains 72 entries of works by his hand. We are informed that the Library of the Indian Academy at Kurseong contains 40 manuscript volumes prepared by him and containing partly unpublished MS. material, whilst some similar material is preserved in the St. Xavier's Library in Calcutta.

Father Hosten has from the very beginning been not only a digger-up, collector and editor of his documents, but always a most generous helper to others. He co-operated largely in the production of the History of the Bengal Mission by H. Josson, S.J., and in a recent volume on *The Jesuits and the great Moghul*, its author, Sir Edward Maclagan, pays a glowing tribute to Father Hosten on whose various publications the work in so far as regards information not already available in 1896, is largely based.

Father Hosten retired from Bengal to Europe in 1931 on account of ill-health. In his native Flanders, whenever his doctors did not forbid it, he continued searching for documents and keeping up a busy correspondence with scholars.

His death came suddenly and unexpectedly.

The writer of this notice, who had many occasions to come in close contact with this loveable and dignified priest and scholar, can only voice the universal sense of loss caused by his death. In this Society his name will be long held in honour. R.I.P.

JOHAN VAN MANEN.

SYLVAIN LÉVI.

(1863–1935.)

Sylvain Lévi belonged to the giants. The *Encyclopædia Britannica* described him in 1929 as follows:—

'French orientalist born in Paris on March 28th, 1863. Educated at the University of Paris. In 1886 he was appointed a lecturer at the school of higher studies in Paris. As special lecturer in Sanskrit he taught at the faculty of letters from 1889 to 1894 when he was appointed to a professorship at the College de France. In 1897 and 1898 he made tours of scientific research in India and Japan, and from 1921 to 1923 he travelled in India, Indo-China, Japan, Korea, Siberia and Russia. Prof. Lévi became a director at the school of higher studies and a member of numerous societies, including the Royal Asiatic Society, the Linguistic Society and the Society of Jewish Studies.'

The remaining years may be as briefly summarized as follows:—

In 1926 he left for Japan, for a third time, and there laid the foundation of a Research Institute called the Maison Franco-Japonaise. In 1928 he returned and visited India again, also for the third time, as well as Java and Bali. In the same year he founded the Institut de Civilisation Indienne in Paris, in connection with the University.

In October 1928 he was back in Paris where the remaining years of his life were spent in great literary productiveness. On the 30th of October 1935 a sudden death, without suffering or previous illness, put an end to his laborious life.

It cannot be our intention in this note to recount in detail, still less to discuss or appreciate, Lévi's scholarship. Eloquent and ample descriptions of his life-work have been given in many places. The *Journal Asiatique* for January–March, 1936, contains a detailed monograph by L. Renou on his scholarly record.

The *Bulletin de la Maison Franco-Japonaise* of Tokyo, for 1936, completes the data in four separate articles. His pupil P. C. Bagchi has published a bibliography of 139 titles of works from his hand in the 12th volume of *The Indian Historical Quarterly*. Elsewhere, in many places, due honour has been paid to his memory. It has been said that, however great a linguist he was, a Master of Sanskrit, Chinese and many old and modern Indian dialects, he was primarily an historian. But that is thinking of him as the scholar. Here we will speak chiefly of the human side of this Honorary Fellow (since 1920) of the Royal Asiatic Society of Bengal. In him the great scholarship never dimmed the great humanity. He was a great bookman but in no sense a bookish man. He was learned but never arid. He was a great classicist but intensely aware of the actual current of life. Of nervous activity, he was a great organizer. He held the secret of converting his many pupils into admirers and friends and of communicating some of his own zeal to them. A typical anecdote is told by Bagchi: 'His house was always open to receive Indian students, and those who have come in contact with him cannot forget the great qualities of his heart. Amongst manifold preoccupations he has often been seen, at the age of 60, running from hotel to hotel to find convenient rooms for a newly arrived Indian student.' During his stay at Shantiniketan he easily dropped into Indian ways of living, thinking and feeling, and merged into the spiritual atmosphere. The great success of his two visits to Nepal was no doubt due to this adaptability and inner affinity with the East. So it was in Japan, so elsewhere. We remember a day when in the Buddhist Vihara in Calcutta a special meeting was held in his honour. The writer of this note was one of the speakers and remarked that if there were something in the power of names it was not strange that Sylvain Lévi was at home in India. Was Lévi not the same as Brāhmaṇa, and Sylvain as Āraṇyaka? This allusion seemed to touch the distinguished guest deeply. He jumped from the platform and warmly kissed the speaker on both cheeks, a typical manifestation of his affectionate nature.

Sylvain Lévi has been a powerful ambassador and interpreter of the West to the East, and of the East to the West. He was a unifier in a discordant world. He never lost the simplicities in his learning, nor was ever his warm heart chilled by the strong cold light of his powerful reason.

It is always something great when real intellect does not obscure goodness, and when vast erudition does not dry up the waters of life.

In Sylvain Lévi the scholar and the man were both exceptional and of outstanding merit. Those who had the privilege of knowing him, will reckon it as something precious to have met him on the path of existence, to have basked in the radiations of his mind and heart. They cannot but realize that the memories of meeting or companionship with him will remain true joys, privileges to be cherished throughout life.

JOHAN VAN MANEN.

(*Partly read in the Ordinary Monthly Meeting on the 4th November,* 1935.)

HENRY FAIRFIELD OSBORN.

(1857–1935.)

The sad death of Henry Fairfield Osborn, Zoologist, Palæontologist, Educationist, Author and Administrator, at the age of 78 has created a gap among the American men of Science which it would be hard to fill. President Osborn—as he was generally known in America since he became the President of the Board of Trustees of the American Museum of Natural History, New York, in 1908 after the death of President Jesup—made very valuable contributions to the sciences of Zoology, Palæontology and Biology ; a great deal of his Zoological and Palæontological work was essentially biological, in that it was carried out with a view to arriving at a better understanding of the nature, continuance and evolution of Life. In addition, his services in the cause of Education and his work as an administrator and author are so remarkable that any of these activities would have won him an outstanding place amongst the leading workers of the times.

Osborn was born on the 8th of August, 1857. He was educated in the Columbia Grammar School and Lyons Collegiate Institute of the New York City, and later graduated at Princeton. Taking up practical field work in the Museum of Geology and Archæology at Princeton after his graduation, he became the leader of the palæontological expeditions of the University to Colorado and Wyoming in 1877 and 1878. In 1878-79 he took courses in Anatomy and Histology at the College of Physicians and Surgeons in New York, and in 1879-80 went to Europe, where he studied embryology at Cambridge under Professor Francis Balfour and Comparative Anatomy in London under Professor Thomas Henry Huxley. In 1881 he was appointed as the Assistant Professor of Natural Science at Princeton, and in 1883 as the Professor of Comparative Anatomy ; this latter post he held till 1890. In 1891 he was appointed to the Da Costa chair of Biology of the Columbia University, and from 1892–95 he also served as the Dean of the Faculty of Pure Science of the University. In 1910 he retired from active teaching at Columbia, but up to his death retained his connection with the University as the Research Professor of Zoology.

In 1900 Osborn was appointed as the Vertebrate Palæontologist of the U.S. Geological Survey, and in 1924 he was promoted to the rank of its Senior Geologist. In 1906 he was unanimously elected as the Secretary of the Smithsonian Institution, the highest scientific post in the United States of America, but in view of his great interest in the American Museum of Natural History he declined this high honour.

In addition to being a trustee and curator of several divisions of the American Museum of Natural History, New York, he served as its Vice-President (1899–1901) and was its President from 1908 to the date of his death. During his Presidential administration he inaugurated a very efficient plan for the internal organization of the American Museum; the most important development for the instruction and recreation of the visiting non-scientific public has been the preparation and installation of attractive museum groups in replicas of their natural surroundings in almost all sections of the Museum. He was also responsible for sending numerous expeditions to collect natural history material not only in different parts of America but almost all over the world. It was his far-seeing policy that has made the American Museum of Natural History one of the biggest institutions of its kind, with its very rich study collections for research, and the beautiful and instructive exhibits in its very extensive public show galleries. His work in the cause of public education was considered of so great an importance as to be acknowledged by the award of the Roosevelt Medal of Honour, presented by President Harding in 1923.

His first scientific contribution was published at the age of 21, and since that date during the 58 years of his active life he published an enormous number of original contributions either in the form of papers and monographs or as separate volumes dealing with special subjects.

The new biological principles which he enunciated as a result of an inductive line of investigations on fossil vertebrates have not all been universally accepted, but the environmental principles of adaptive radiation, polyphyletic evolution and homogenic classification have gained wide support amongst Palæontologists and, to some extent, among Zoologists.

President Osborn was a member of a large number of scientific academies and societies, and was also the recipient of a large number of medals and awards both in the United States and of the leading scientific societies all over the world. He was a foreign member of the Royal Society of London and was the only Zoologist to be elected as a Centenary Anniversary Fellow of the Asiatic Society of Bengal in 1934. The writer had the privilege of meeting him first in 1925 on the occasion of the Meeting of the British Association for the Advancement of Science in

Oxford and later in New York in 1930, and can never forget the impression created by his masterful personality. He was a charming man, pleasant and unassuming to talk to, and his interest in anything relating to Science and Education was all-absorbing. May his soul rest in peace!

B. PRASHAD.

(*Read in the Ordinary Monthly Meeting on 2nd December, 1935.*)

PROCEEDINGS OF THE MEDICAL SECTION MEETINGS, 1935.

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NOVEMBER, 1935.

A meeting of the Medical Section of the Asiatic Society of Bengal was held on Monday, the 18th November, 1935, at 6 P.M.

PRESENT.

LT.-COL. R. KNOWLES, C.I.E., B.A., M.R.C.S., L.R.C.P., I.M.S., F.A.S.B., Vice-President, in the Chair.

Members :

Hora, Dr. S. L.	Pasricha, Capt. C. L.
Mallya, Major B. G.	White, Dr. R. Senior

(There were five visitors present.)

The minutes of the last meeting were read and confirmed.

The following papers were read :—

1. S. L. HORA.—*Recent Indian cases of live fishes impacted in the food and air passages of man.*

In a series of three articles, Dr. E. W. Gudger has brought together 38 recorded cases of live fishes in the human food and air passages. These records date from 1567 to 1933 and show that the phenomenon occurred in several countries. Of the 38 cases discussed by Gudger, 12 are known to have occurred in India and Burma. Through the kind help of Major-General D. P. Goil, 19 more cases have been collected from all over India and Burma—1 from the Bombay Presidency, 6 from the Madras Presidency, 3 from Bihar and Orissa, 1 from Bengal, 5 from Assam, and 3 from Burma. Of the 31 cases, 17 were due to *Koi* (*Anabas testudineus*), 4 to *Kholisha* (*Colisa fasciata*), and 1 each to *Mastacembelus*, *Nandus*, and *Cynoglossus*. The types of fish responsible for the remaining 7 accidents are not known. As regards the location of the impacted fishes, in all Indian cases discussed by Gudger the fish were found in the pharynx. Of the 19 cases now recorded, in 13 cases the fish was lodged in the food passage and in 6 cases in the air passage. The reports regarding the nature of treatment and the condition of patient are given, while the surgical aspect of these cases will be discussed by Lt.-Col. B. G. Mallya. The various types of fish enumerated above will be exhibited.

In explaining his paper Dr. *Hora* remarked that the accounts of two accidents of impaction of live fishes in the throat of man that appeared in the *Statesman* during 1927 and 1934 attracted his attention and with a view to ascertain the frequency of such occurrences and to know the types of fishes responsible for such accidents he had a circular sent to all government medical officers through the courtesy of Major-General D. P. Goil. The reports received are of considerable interest as they show that the accidents are restricted mainly to Madras, Orissa, Bengal, Assam, and Burma where *Koi* (*Anabas*) is found in considerable quantities and where people habitually use fish for food. No case has been reported from the North-West Frontier Province, the Punjab, the Central Provinces, and the United Provinces, and there is only one case reported from Bombay in which the fish concerned was a *Mastacembelus*. The accounts of certain cases were read out and attention was directed to the form of body and the direction of spines in the various types of fishes found in the human food and air passages.

2. B. G. MALLYA.—*Surgical aspect of live fishes impacted in the human food and air passages.*

The treatment in cases of this type is that of a foreign body lodged in the food and air passages. These cases are surgical emergencies and hardly any time is available to prepare for an operation on an elaborate scale, let alone sending for a surgeon or a specialist in Ear, Nose, and Throat work.

The point that requires immediate attention is whether there is respiratory embarrassment or not. In the majority of such cases there is extreme urgency as revealed by the heavy mortality in the cases collected with such care and labour by Dr. S. L. Hora. While confronted with a case of extreme urgency of this type, it is the opinion of the author that the immediate treatment should consist in doing a tracheotomy as a life saving measure.

In further explaining his remarks Lt.-Col. *Mallya* stated that the treatment in cases of this type is that of a foreign body lodged in the food and air passages. Such cases are brought for treatment to the nearest dispensary by day or night and may be rightly classed as surgical emergencies. Foreign bodies in the pharynx and air passages cause suffocation and require immediate treatment. The first thing to do is to inspect the throat with a good light and explore with the finger. If the head of the fish is seen or felt it may be caught with a pair of forceps and pulled out. Such cases are however rare.

One such case came under my observation at the Chittagong General Hospital where a girl aged about nine years was brought with a fish stuck in her naso-pharynx. This fish had got in through the nose and inspection of the throat revealed its head which was caught with a pair of long forceps and the fish was pulled out. There was slight bleeding. This girl made an uneventful recovery as an out-door case. There was no respiratory embarrassment in this case.

In the majority of cases there is extreme urgency as revealed by the heavy mortality in the cases collected with such care and labour by Dr. S. L. Hora. The person is suffocated by the foreign body and signs of asphyxia are present. As death occurs in a few moments, there is hardly any time to prepare for an operation on an elaborate scale, let alone sending for a surgeon or a specialist in Ear, Nose, and Throat work.

In cases of extreme urgency of this type immediate treatment consists in doing a tracheotomy as a life saving measure and if no instruments are available a pocket knife may be used for giving the patient air which he needs most at this moment. Tracheotomy is an urgent operation and every medical man is expected to do this operation with any instruments at hand at any time.

Dr. *Nag Chowdhury* stated that at the request of Lt.-Col. Mallya, he had studied all the cases reported by Dr. Gudger and those recently collected by Dr. Hora. He observed that the tenacity of life of the fishes concerned in these accidents, especially that of *Koi*, makes the task of handling the fish very difficult, for, as long as the fish is alive, it can raise its spines and can make forward progress in the food or air passage. In the treatment of such cases, there are four main considerations: (i) condition of the patient, (ii) part of the passage obstructed—pharynx, oesophagus, larynx, trachea, lung, etc., (iii) the type of fish impacted, and (iv) appliances to be used. For the purposes of treatment such cases can be divided into six main groups according to the part of the passage obstructed: (i) Oropharynx, (ii) Hypo-pharynx, (iii) Oesophagus; upper, middle, and lower parts, (iv) Larynx, (v) Trachea, and (vi) Lungs or Bronchi.

According to the condition of the patient a stimulant must be given to prevent shock and reflex spasms of pharyngeal and laryngeal muscles. In the cases of respiratory embarrassment tracheotomy or laryngotomy should be performed at once. After these life saving measures have been taken the actual state of affairs should be ascertained by passing the oesophagoscope and laryngoscope. If the head of the fish can be located within easy reach it should be held by a long pair of forceps and the fish pulled out. If the fish is deeply impacted then with the help of an endoscope the gill covers and fin spines should be cut with long cutting forceps. The fish should then be pulled out and the cut portions should be removed afterwards separately. In some cases it may be necessary to expose the pharynx by lateral pharyngotomy to pull out the fish with the head first through the wound. When the fish happens to be in the middle or lower parts of the oesophagus, then it should be pushed down into the stomach where it may be allowed to remain for normal digestion or taken out by gastrotomy, as may appear most suitable. In the case of the larynx, trachea, and bronchi a low tracheotomy is essential and all effort should be made to restore respiration as early as possible. The fish should be then pulled out through the wound with the help of the bronchoscopy tube bit by bit, may be in two or three sittings.

In summing up the author referred to the bad custom of biting off the heads of these fishes which sometimes leads to calamitous results and deprecated the use of the probang in such cases. He advocated the use of X-rays, where available, for the precise location of the fish before operation.

Lt.-Col. *R. Knowles* thanked the three authors on behalf of the Society for the interesting and valuable papers they had communicated to its Medical Section. He referred to an old case of thirty-three years ago where a cat was concerned. A long fish bone had stuck in the throat of the cat and it was possible to remove it with the help of a probang. He enquired from Dr. Hora the percentage of mortality in the cases recently collected by him.

Capt. *C. L. Pasricha* enquired whether it was not possible to remove an impacted fish from the throat bit by bit by cutting off portions of it. In the case of air-breathing fishes, such as *Koi*, he suggested that an injection should be given to kill them at once.

In reply to Col. Knowles Dr. *Hora* stated that there were twelve deaths out of the nineteen cases collected by him recently.

In reply to Capt. Pasricha Dr. *Hora* stated that Dr. Francis Day, a Medical Officer and the greatest student of Indian Fishes, suggested the removal of the fish bit by bit after attending to the respiratory embarrassment first. In his opinion the portions of the fish which could not be

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easily removed should be allowed to stay *in situ* till they decay and fall down. The smell is immaterial in such cases where it is a question of life and death.

Capt. *Pasricha* suggested that with the modern appliances it should be possible to suck out the inner mass of the fish after removal of such of its portion which could be easily handled.

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DECEMBER, 1935.

A meeting of the Medical Section of the Asiatic Society of Bengal was held on Tuesday, the 17th December, 1935, at 6 P.M.

PRESENT.

SIR LEWIS FERMOR, KT., O.B.E., A.R.S.M., D.Sc. (London), F.G.S., M.INST.M.M., F.R.S., F.A.S.B., President, in the Chair.

Members :

Basu, Mr. N. M.
Brahmachari, Sir U. N.
Chopra, Lt.-Col. R. N.
Lal, Dr. R. B.
Mukherjee, Dr. J. N.

(There were twelve visitors present.)

The minutes of the last meeting were read and confirmed.

The following paper was read :—

LT.-COL. R. N. CHOPRA *and* A. C. ROY.—*Some Biochemical Characteristics of Snake Venoms.*

Some biochemical characteristics of snake venoms were investigated. Cobra and Russel's viper venoms were selected for this study because though they have some pharmacological properties in common, they differ strikingly in other respects. Thus, the neurotoxic element is preponderant in the cobra venom, while hæmorrhagic or anticoagulant property is more or less peculiar to the venom of the viper, the nervous centres being not much affected. The results of experiments carried out by these workers suggest that by the process of filtration through Seitz filter either the hæmolytic element has been altogether eliminated or it has been inactivated in such a manner that it is incapable of being reactivated by lecithin. The former hypothesis appears to be the more probable one, as Houssay (1921) found that the hæmolytic substance of snake venom is absorbed by animal charcoal, the residual venom solution being non-hæmolytic. They believe that with Seitz filter also a similar process of adsorption is responsible for the loss of hæmolytic property.

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Experiments are in progress with a view to ascertain the nature of this hæmolytic principle and also how far this process of filtration affects the other properties of the venom solutions.

Colonel *Chopra* gave the results of the pharmacological action of filtered and unfiltered venoms and pointed out that there was no doubt that the action on the blood pressure and respiration of the unfiltered venom was different from that of the filtered venom.

Dr. *R. B. Lal* suggested that attempts might be made to deadsorb the lytic principles retained in the Seitz filter and thus obtain it in a pure condition. For this purpose filtering materials such as kaolin might be used, and care should be taken to prevent oxidation of the active principle.

Dr. *M. N. Bose* remarked that it is a well-known fact that cobra venom contains a lecithinase, and that the constitution of lecithin and kaephalin has been partly worked out with the help of the cobra venom.

Dr. *J. S. Chowhan* thought that filtering the venom through Seitz filter has the advantage of making it sterile, without the help of chemicals and at the same time of removing some of the toxic principles. He cited sixteen cases where cobra venom was used for cancer and different types of neuralgia.

पुस्तकालय
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NOTICE

The Year-Book of the Royal Asiatic Society of Bengal is a continuation of the following four periodicals published by the Society :

Asiatic Researches, I–XX, 1788–1839.

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